PROGRAM IMPLEMENTATION PLAN
for

Host Interface Device (HID)

National Airspace System (NAS) Local Area Network (LAN)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
June 30, 1997

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DOCUMENT CHANGE NOTICE

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This notice informs recipients that the standard identified by the number (and revision letter) shown in block 4 has been changed. The pages changed by this DCN (being those furnished herewith) carry the same date as the DCN. The page numbers and dates listed below in the summary of changed pages, combined with non-listed pages of the original issue of the revision shown in block 4, constitute the current version of this specification.

13. DCN No.	14. Pages changed	S*	A/D*	15. Date

S* = Indicates Supersedes Earlier Pages *A = Indicates Added Page *D = Indicates Deleted Page

FOREWORD

This Program Implementation Plan provides management direction, technical information and guidance to all levels of the FAA that are involved in the Host Interface Device National Airspace System Local Area Network (HID/NAS LAN) program implementation.

This document has been written in compliance with FAA STD-036, Preparation of Program Implementation Plans, and identifies and describes specific requirements, events, tasks and activities to be accomplished, as well as project responsibilities that are necessary to implement the program.

Management responsibility for this program is the Aeronautical Data Link Product Team, AND-720.

The goal of this PIP is to provide a uniform approach for all organizations that have a role in conducting activities necessary to implement any portion of this program.

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TABLE OF CONTENTS

FIGURES AND TABLES

FIGURES

TABLES

1.0 GENERAL

1.1 Purpose of Document

This document serves as the Project Implementation Plan (PIP) for the Host Interface Device (HID)/NAS Local Area Network (LAN) in all 20 ARTCCs located in the Continental United States. This PIP identifies activities and schedules required to accomplish this implementation. The HID/NAS LAN is a subset of the Aeronautical Data Link, CIP C-20.

1.2 Scope of Document

The PIP is applicable to all levels of management with responsibility to implement the HID/NAS LAN into the NAS. This PIP is a living document to be updated as activities and schedules dictate.

1.3 Distribution

This PIP is distributed to branch level offices and core team members within the Integrated Product Team (IPT); to division level offices of the Associate Administrators for Air Traffic Services for Research and Acquisitions; to the division levels of the Mike Monroney Aeronautical Center and the FAA Technical Center; to the Regional Associate Program Managers; to branch level offices in the regional Airway Facilities and Air Traffic divisions; and to all Airway Facilities System Management Offices (SMO). The PIP is segmented into 13 sections for easy separation.

1.4 Definition of Terms

Definitions of terms, abbreviations, and acronyms used in this document are contained in Appendix C. The following implementation terms are defined to clarify their specific usage in this document:

Implementation. Those activities necessary to deploy and support the products of a single program into a facility or field environment. Implementation activities include site and facility preparation for new or relocated systems and equipment, equipment installation and test, and completion of all steps leading to full operational capability, including Initial Operational Capability (IOC), Operational Readiness Demonstration (ORD), and final acceptance and certification by Air Traffic and Systems Operations personnel. The following seven time phases comprise the implementation process:

Planning. Implementation planning begins during the Concept Exploration Phase of the acquisition process. The planning phase ensures that adequate resources will be available and that appropriate preparation has been completed prior to conducting site implementation activities.

Pre-Installation and Checkout (Pre-INCO). This phase begins with the program site survey and concludes with delivery of program equipment at the site. Pre-INCO activities include power installation , signal cable location, and overall site preparation, and culminates with the delivery of program equipment and successful completion of site preparation.

Installation and Checkout (INCO). INCO activities address the installation and completion of stand-alone testing of prime mission equipment. Successful completion of Contractor Acceptance Inspection (CAI) denotes the end of INCO.

Integration. Integration begins upon successful completion of INCO. The program equipment is integrated with the existing NAS system/subsystems, including FAA internal and external interfaces. Interface testing is conducted, and Initial Operational Capability (IOC) may be declared.

Field System Test. Once IOC is declared, controllers, meteorologists, maintenance staff, system engineers, and managers take steps to increase the number of staff at full proficiency on the system during System Shakedown. The contractor provides support, including On-The-Job Training (OJT) and briefings to all personnel involved in the program. System use begins in a carefully controlled operational environment during limited low traffic periods and increases incrementally to verify that the integrated system is fully functional. The end of System Shakedown is marked by the final Joint Acceptance Inspection (JAI) and an Operational Readiness Demonstration (ORD).

Dual Operations. Dual Operations at replacement sites follows ORD and commissioning of the new system through decommissioning of the old system. This time is used to develop increased confidence in system operations and supportability under live traffic conditions.

Equipment Removal. Equipment Removal occurs after the facility managers decommission the old system, which at this point is no longer required for operational backup. During Equipment Removal, old equipment is removed and disposed of, the facility is restored, and FAA facility and equipment databases are updated to reflect the new configuration.

Operations and Maintenance. The Operations & Maintenance phase of the acquisition process begins upon completion of Equipment Removal and continues beyond implementation for the remainder of the system life cycle. The Operations & Maintenance phase marks the achievement of full operational capability.

Personnel Certification. Personnel certification is a two-phase process consisting of a certification authority phase and a responsibility assignment phase. Certification authority requires FAA technical personnel to demonstrate knowledge of the theory of operations and the ability to practically demonstrate this knowledge. Certification responsibility is the official assignment to FAA technical personnel to use their authority to certify a specific service/system/subsystem/equipment in the NAS.

System Certification. Periodic verification and validation that the advertised quality and scope of services, and the capability of providing those services, are being provided to the users.

Transition. The aggregate of implementation activities for multiple programs, destined for deployment to a specific facility or field environment.

Transitory State. The period of time at a site from Pre-INCO through Equipment Removal.

1.5 Cancellation

This is the initial PIP for the HID NAS/LAN System and does not cancel any other Government document or documents.

1.6 Authority to Change

The IPT Team Leader for Aircraft, Avionics, & Navigation Systems, AND-700 may issue changes to this document necessary to manage and implement the project which do not affect policy, delegate authority, or assign responsibility. ANS-700, Transition and Integration Division, with the approval and concurrence of the IPT leader, may issue changes, updates and revisions to this document.

1.7-1.19 (Reserved)

1.20 Risk Assessment Overview

Funding availability may affect the deployment to any sites beyond mid-FY 1998. Coordination with AUA on the funding situation is currently being worked.

2.0 PROGRAM OVERVIEW

2.1 Synopsis of Mission Need

Development of the HID/NAS LAN system followed a decision to expand the Host Computer System (HCS) functionality by providing a common infrastructure for data communication between the HCS, user infrastructure projects, and systems external to the ARTCC. The HID/NAS LAN is a subsystem of the en route portion of the Aeronautical Data Link System (ADLS) which was established to provide an air/ground digital data communications link between aircraft and air traffic and flight information ground services. Other components of the en route portion of ADLS include the Host Data Link (HDL) software and the Data Link Applications Processor (DLAP) hardware and software, both of which are in various stages of development and acquisition.

Reference: Mission Need Statement for Aeronautical Data Link Program, dated October 23, 1991, and the *Draft* Aeronautical Data Link System Acquisition Plan, dated February 28, 1996.

2.1.1 Operational Needs

The airborne users and Air Traffic Control (ATC) drive the operational need of the DLAP and the HID/NAS LAN system. The HID/NAS LAN and DLAP will be a portion of the ARTCC communication infrastructure between the HCS and eventual users of ADL services. It also provides connection between the HCS and other user beneficial automation subsystems such as the Center TRACON Automation System (CTAS), Automated En Route Air Traffic Control, (AERA), User Request Evaluation Tool (URET) , and Enhanced Traffic Management System (ETMS). The HID/NAS LAN system will provide a common interface to the HCS for DLAP and other automation subsystems. The DLAP will provide an application gateway to support Open Systems Interconnection (OSI) protocols that will minimize loading on the HCS.

A two-phased development approach was chosen to provide the necessary User Benefits Infrastructure (UBI). Phase 1, which includes the HID/NAS LAN system, involves the acquisition and deployment of all system hardware and software specified herein. Phase 2 involves the development, integration and deployment of the Common Data Facility (CDF) by AUA. The HID/NAS LAN system will provide early connectivity for CTAS and other UBI automation systems. Measurable user benefits will begin with the initial operating capability (IOC) of the en route data link functionality as the ground-based communication infrastructure is completed and aircraft are equipped with compatible data link avionics.

Reference: Mission Needs Statement, dated October 23, 1991 and Operational Requirement Document dated January 3, 1995.

2.1.2 Strategic Goals

2.1.2.2 En Route ATC Data Link Services

By deploying ADL functionality on the HCS in the en route domain, the goal will be to implement Two-Way Data Link (TWDL) services for the purpose of digital exchange of ATC messages between the pilot and the controller, such as transfer of communications, climb, descend, cruise altitude, cross position at altitude, and pilot down link menu. ADL functionality will initially be deployed using HDL/PVD at the key site only; national deployment is expected to be deployed on HDL/DSR. The overall en route ADLS services will be obtained through the implementation of HCS software modifications, a HID, and a DLAP.

2.1.2.3 Use of Pre-existing Hardware and Software

The HID/NAS LAN hardware and communications software is commercial off the shelf (COTS), and will be purchased through an existing contract vehicle with the National Institutes of Health (NIH), the Chief Officer Solutions and Partners (CIO-SP) contract.

2.1.2.4 Number of Systems, Time Frame for Acquisition, Testing and Deployment

All twenty CONUS-based ARTCCs, FAAAC and the William J. Hughes Technical Center (WJHTC, formerly the FAATC) as a minimum, will have a HID/NAS LAN system acquired and installed. The *first system* will be installed at the WJHTC for OT&E Systems Testing, previously known as Integration and Shakedown testing.

The installation schedule of the HID/NAS LAN is expected to follow the CTAS build-II Schedule. The Denver ARTCC (ZDV) in Longmont, Colorado was selected as the first operational site. Section 11 of this PIP has a complete Implementation Schedule.

The HID/NAS LAN and its components are expected to be fielded earlier than the other components of the en route ADLS in order to provide the Host access to other NAS UBI automation efforts, i.e., CTAS, AERA, and ETMS. CTAS is expected to be fielded during 1997. If the AOS A4e2.0 uplevel includes the HID driver code, then the deployment of the Host monitor code software on the HCS is expected to begin by the first quarter of 1997 under the auspices of AOS and the individual sites. The other UBI automation subsystems are expected to migrate to the HID/NAS LAN once the HID/NAS LAN has been successfully implemented, and its transition to the NAS has been achieved. Other ADLS subsystems, such as the DLAP and HDL software, are expected to be deployed late 1998 through 2000 and are not addressed in this PIP.

2.2 Functional Description

2.2.1 Host Interface Device (HID)

The HID will provide an interface between HCS applications and other applications resident on user systems (user systems include, but are not limited to the Traffic Flow Management (TFM) and DLAP systems connected to the NAS LAN). The HID NAS/LAN system includes two HIDs, a primary and a backup. Each HID contains two HCS interface cards which will be provided to the contractor as Government Furnished Equipment (GFE). Each HCS interface card will connect to the HCS via an IBM block multiplexer channel. Each HID will operate as a NAS element under the HCS control.

At any given time, only one HID (either the primary or the backup) will be providing communications between the HCS and the user systems. The remaining HID shall be capable of performing off-line functions under the control of the stand-by HCS. During normal operations, both HIDs shall be immediately available for operational use as controlled by the HCS. Failure of a HID shall not cause a switch-over of any other NAS element or device.

The HID will include a Host Resources Management Information Base (MIB). The HID will include a management agent, accessing the MIBs of the HID and communicating with the Network System Manager (NSM).

Reference: DRAFT Prime Item Product Specification for the HID/NAS LAN, dtd 01/30/97

2.2.2 NAS Local Area Network (NAS LAN)

The NAS LAN shall support communications between the HCS and user systems including, but not limited to, the TFM systems and the DLAP. The NAS LAN shall include all concentrating devices, cables, and connectors necessary to form a high-performance, highly available local area network by connecting to the network adapters of the HID, HNL Router, NSM, and user systems.

The NAS LAN shall provide a local area network capable of digital data transmission at a rate of not less than 100 Mbps. The NAS LAN shall permit the connection of up to 500 devices. The NAS LAN shall provide redundant paths for each communicating device such that the failure of one path connected to a communicating device shall not affect that device's ability to communicate using the NAS LAN. The failure of any device connected to the NAS LAN shall not affect the communications of any other device connected to the NAS LAN. The NAS LAN components shall be mountable in a standard rack configuration as defined in FAA-G-2100F.

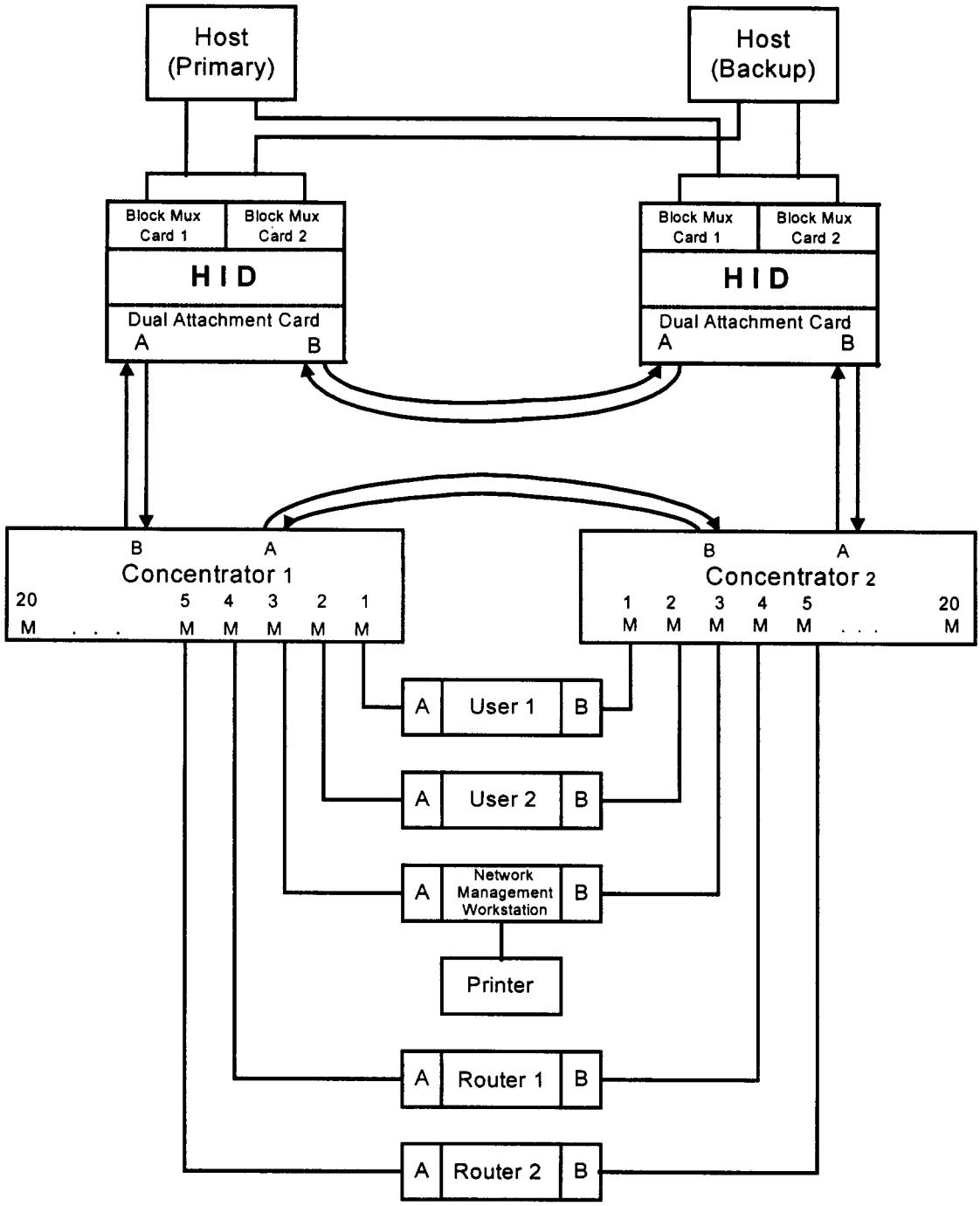

Figure 2-1. HID NAS LAN Connectivity

2.2.3 Network System Manager (NSM) Workstation

The NSM includes a workstation and network management software supporting operation of the HID/NAS LAN network. The NSM performs the network management functions by

manipulating the available MIBs of all HID/NAS LAN elements, and the MIBs of all cooperating user systems.

The NSM shall be provided with: a color monitor, a keyboard, an integrated pointing device such as a trackball, and either an impact or ink jet printer. The NSM components will be mountable in a standard rack configuration as described in FAA-G-2100F.

2.2.4 HNL Router

Each HID/NAS LAN system will include two HNL Routers as a primary and back-up. The HNL Router will provide a communication link between the user systems and systems outside the ARTCC such as NADIN nodes, adjacent ARTCCs and TRACONs. The HNL Router will also serve as an Internet Protocol (IP) router between the existing Ethernet networks of the TFM systems and the NAS LAN. Using network access, the HNL Router will be monitored and controlled from the NSM.

2.2.5 HCS Monitor Code

Changes to the Host monitor code software will add the ability to the Host operating system to status additional external devices on the FDDI, including the HID, DLAP and other UBI automation subsystems.

2.2.6 HCS/HID Interface Functional Performance Characteristics

Each HCS interface card in the HID will be configured to operate as a channel control unit connected to a HCS block multiplexer channel. An HCS interface card will support the functions of a shared (multi-device) control unit as defined in the IBM 3083 block multiplexer channel specification(GA22-6974-10). The block multiplexer channels will be provided as Government Furnished Equipment (GFE). The block multiplexer channel assignments will be part of the adaptation files for the HCS. In addition, the block multiplexer channel adaptation file will be capable of being modified using an off-line capability. Each Host processor will be capable of communicating with each HID. However, only one HID will be on-line at any time. The HCS processors will control the operational status of the HID.

2.2.7 CTS/HID Interface Functional Performance Characteristics

The HID/NAS LAN will acquire UTC data by way of an interface between the HID and the ARTCC CTS. The CTS/HID Interface will be implemented as defined in NAS-IR-92020000.

2.2.8 HID/NAS LAN Functional Performance Characteristics

Each HID system will be connected to the NAS LAN via two communications ports. In each HID system, only one port will be operational at any given time, the other will be in bypass mode. The HID will monitor and control the port operational/standby mode selection and will report this status to the NSM

2.2.9 HNL Router/Communications Interface Functional Performance Characteristics

The HNL Router will be capable of supporting connection to NAS LAN, X.25, ISO 8802-3, and ISO 8802-5 subnetworks.

2.2.10 Operating System Software

The operating system will be POSIX-compliant as defined in FIPS 151-2 and will support the fault detection/isolation capabilities described in the specification.

The operating system has a command language and will accept/process commands issued from the CRT terminals.

2.2.10.2 Communications Software

Communications software will be provided that fully supports the interface requirements.

2.2.10.3 Maintenance Software

Maintenance software will be provided to perform self testing, fault isolation, and fault recovery as described in this specification. The maintenance software will provide fault detection to the LRU level. The outputs of the maintenance software will be accessible by the FAA developed application software.

Reference: DRAFT Prime Item Product Specification for the HID/NAS LAN, dtd 01/30/97

2.3 Program History & Status

Development of the HID/NAS LAN system followed a decision to expand the Host Computer System (HCS) functionality by providing a common infrastructure for data communication between the HCS and user systems. These user systems included user beneficial projects and systems external to the ARTCC. The HID/NAS LAN is a subsystem being development by the FAA Data Link Product Team to provide a programmable high-speed interface to the HCS to serve multiple NAS LAN subsystems.

The HID/NAS LAN system will provide early connectivity for CTAS and other user beneficial automation systems. Measurable user benefits will begin at the initial operation capability (IOC) of the en route data link functionality, i.e., when the ground based communications, infrastructure is complete and aircraft are equipped with compatible data link avionics.

Reference: HID/NAS LAN System Specification, dtd 11/21/96

2.4 Program Milestones

The significant program milestones for the HID/NAS LAN implementation are provided below.

Table 2-1. Milestones for the HID/NAS LAN

Program Milestone	Schedule
Contract Awarded to CSC for ERSDS I (software development)	1/89
SRR	12/94
PDR (software only)	1/95
Contract Awarded to CSC for ERSDS II (software development)	7/95
CDR (Software only)	12/96
Contract Award for HID/NAS LAN	2/97
Prototype the HID/NAS LAN at the WJHTC	5/97
Prime Item Specifications for the HID/NAS LAN (Final)	6/97
Complete OT&E System testing	7/97
Delivery to Keysite (ZDV)	8/97
Obtain ISR Decision approval	10/97
Complete First Site Joint Acceptance Inspection (JAI)	11/97

2.5 Inter-Agency Involvement

2.5.1 Department of Defense (DOD)

There is no interagency involvement with the Department of Defense.

2.5.2 National Weather Service (NWS)

There is no interagency involvement with the National Weather Service.

2.5.3 U.S. Customs Service

There is no interagency involvement with the U.S. Customs Service.

2.5.4 Drug Enforcement Agency (DEA)

There is no interagency involvement with the Drug Enforcement Agency (DEA).

2.5.5 Other Agencies

There is no other interagency involvement.

2.6-2.19 (Reserved)

2.20 Status Assessment

Funding shortfalls, certification, and training development may affect the implementation schedule for the HID NAS LAN.

3.0 AF OPERATIONS

3.1 Summary of Maintenance Operations Impacts

The maintenance concept for the HID NAS LAN will be Interim Contract Maintenance Logistic Support (ICMLS).

Reference: AFRMT, Atlanta, GA, December 3-4, 1996; DRAFT Integrated Logistics Support Plan (ILSP), dtd 3/8/97

3.1.1 Transitory State

The statement of work for the CIO-SP contract states that the integration services will include performing site surveys, developing site preparation plans, performing site preparation activities (as required), developing site installation and checkout procedures, performing pre-delivery COTS hardware/software staging activities for specific systems, delivering, installing and integrating HID NAS LAN COTS hardware/software.

During the HID/NAS LAN implementation, AF Sector and/or F&E personnel may be requested to perform the following activities:

- attend the site survey and identify and coordinate the site preparation activities
- during site fit-up, the FAA should be available for the fit-up contractor for counsel and decisions, if necessary
- the FAA participates in a walkthrough for the fit-up work and will be responsible for receiving, visually inspecting and placing the delivered equipment into the designated location or decide if the contractor will place in the designated location
- no site preparation activity as a pre-requisite for the fit-up effort is required by the FAA.

Reference: CIO-SP Statement of Work, dtd 2/20/97; Draft Site Preparation Plan (CDRL B06), dtd 3/27/97

3.1.2 Operational State.

AOS-320 and AOP-300 are working to incorporate HID certification requirement into the HOST computer. COTS diagnostics will be used to certify HNL's operational status.

Reference: Implementation Meeting, ZDV, 1/9 - 1/10, 1997

3.2 AF Procedural Changes

The operations and configuration course description will be provided by AMA-380. Upon completion of training, the site technicians will be able to perform the operation and maintenance skills listed below:

- Configure the HID/NAS LAN in accordance with the instruction manuals and FAA handbook specifications.
- Analyze maintenance and diagnostic programs to isolate malfunctions to the printed circuit board level or LRU level.
- Use appropriate software/firmware, test equipment, and functional and flow diagrams to restore equipment operation.
- Analyze programming techniques to evaluate operational and diagnostic programs.
- Perform all console operations necessary to initialize, configure, reconfigure and maintain the operating system.
- Use console executive and supervisory commands for data display, traffic management, data retrievals, and various specialized commands.
- Interpret error messages and codes and take corrective action.
- Understand computer-generated reports and service messages and make the necessary responses.
- Initialize, load, and run applications software.
- Use C and Assembler language compilers, editors, debuggers, linkers, loaders, and other tools used to develop application and communications programs.
- Understand the specific hardware, firmware, and operating system capabilities available to the applications and communications software and be able to access these capabilities from software they create.
- Understand the fault isolation and reporting capabilities of the HID/NAS LAN system and be able to access the failure information from the applications software they create.

Reference: DRAFT HID/NAS LAN Integrated Logistics Support Plan (ILSP), dated 3/8/97

3.2.1 Preventive Maintenance

Preventive maintenance is conducted on a scheduled basis to reduce the occurrence of unanticipated malfunctions and/or facility outages. All preventive maintenance will be performed at regular intervals and will be scheduled for minimum interference with normal FAA facility operation. The equipment is configured so that preventive maintenance can be performed without disrupting the on-line component. Site visits for preventive maintenance shall not exceed four (4) per year or one (1) per quarter, in accordance with FAA Order 6000.30B.

Details enumerating all maintenance activities that must be done on a recurring basis to ensure optimum performance, minimize service interruptions and avoid major breakdowns can be found in the following HID/NAS LAN technical manuals:

a. System Manuals (To be specified by CSC)
b. FAA Order 6510.15, Maintenance Handbook

c. FAA Order 6000.27, Transmittal of Maintenance Philosophy Steering Group (MPSG) Report
d. FAA Order 6000.30B, Policy for Maintenance of the National Airspace System (NAS) Through the Year 2000

3.2.2 Corrective Maintenance

Corrective maintenance is the category of maintenance which is performed on an unscheduled basis to correct critical or non-critical hardware or operating software failures and to restore the equipment to a satisfactory operational state. Corrective maintenance includes fault detection, fault isolation, removal and replacement of the faulty LRU, verification of repair and alignment. Corrective maintenance service will commence promptly after notification that equipment is inoperative, or that degradation of functions has occurred (HID/NAS LAN is still functioning, but a redundant component has failed), or when, through the process of performing periodic maintenance services, it is determined that failure is imminent. Corrective maintenance shall not be required more than four (4) times per year.

3.2.3 Software Maintenance

Applications software for the HID/NAS LAN will be maintained under the management of Operational Support Service AOS. All software maintenance will be accomplished at the FAA William J. Hughes Technical Center (WJHTC) by AOS personnel or support contract personnel under FAA guidance. AOS will establish and maintain a Software Configuration Control Board (SCCB) the membership of which shall be drawn from the appropriate staff elements. Although located at the WJHTC, the support group provides skills to analyze and correct system-wide problems and assist sector support staffs in diagnosing difficult site problems.

By system design, software maintenance for the HID/NAS LAN at the sites will be minimal. Software maintenance and configuration management will be controlled by AOS at the WJHTC. HID/NAS LAN software capabilities include building and implementing site-specific data bases, identification of software problems, collection of support data, and submission of the problem description and data to AOS for resolution. The HID/NAS LAN is capable of receiving new software versions from AOS and of testing, verifying, and validating that the version or modification to existing software meets operational requirements for operational use.

AOS is the focal point for HID/NAS LAN second level software maintenance. Software maintenance conducted by AOS at the WJHTC consists of identifying problems, collecting supporting data, and recording and resolving reported problems. AOS has the capability of distributing new software versions and their related documentation to operational sites after testing and verification. AOS provides the necessary configuration management tools to manage the distributed software versions. AOS software maintenance activities ensure the initial release and subsequent updates to HID/NAS LAN software do not detract from the operational functions or current interfaces of the software being replaced.

Sites requesting site specific software adaptations will transmit the adaptation change requirements to AOS. Sites will maintain the old (previous) version of software until a new (next) version is available and has been operationally verified, downloaded, and cut over. AOS will compile the approved adaptation changes and send the new adaptation data to the site via download for cutover.

3.2.4 System Operations/Monitoring

The equipment is fully field maintainable by use of existing FAA general purpose test equipment (GPTE) or special purpose test equipment as identified subsequent to contract award. Maintenance features include internal on line diagnostics to identify the failed unit, simple removal and replacement maintenance methods to restore the equipment to an operable condition, and built-in self test capability to aid in fault isolation. The HID/NAS LAN has a Network System Manager (NSM) that operates continuously as a central diagnostic function. Fault and diagnostic information is automatically provided to the NSM and is available at the HID/NAS LAN system consoles. The HID/NAS LAN operational integrity will be monitored by the interface to the NSM, which will receive periodic status/performance messages from the HID/NAS LAN. Certification data requirements are included in the HID/NAS LAN's applications software. When requested by NSM, the HID/NAS LAN will provide this status/certification data to the NSM, including the following messages:

a. Current average response times for various categories of data
b. Current operational state of the HID/NAS LAN system
c. Current hardware status
d. Current status of communications ports

The HID/NAS LAN will interface with the NAS Infrastructure Management System (NIMS), when operational via the Network System Manager (NSM).

Reference: DRAFT HID/NAS LAN Integrated Logistics Support Plan (ILSP), dated 3/8/97

3.2.5 System Certification

Although the HID/NAS LAN is an essential vice critical system, it will be considered to be certifiable. AOS-320 is currently working on developing the Host Computer System (HCS) certification procedures.

Reference: Implementation Meeting conducted at ZDV, January 9-10, 1997

3.2.6 Personnel Certification

Certification of personnel is required for Operating and Maintaining the HID/NAS LAN system. To that end, a LAN System Administrator Course is being developed by the contractor. System Certification will be performed by the AF Technician.

References: Draft NAS Integrated Logistics Support Plan for the HID/NAS LAN, dtd 3/8/97; Draft HID/NAS LAN Statement Of Work; and Minutes from the AFRMT meeting of 3/21/96.

3.2.7-n (others as needed)

3.3 Facilities and Equipment

F&E support is limited to performing site preparation including the site engineering and planning. Specific F&E support will be determined during site survey.

3.4 Systems Maintenance

Under this maintenance concept the contractor will provide total site maintenance, restoration, repairs, and supply support (issuing, receipting and repairing LRUs) for the HID/NAS LAN for the initial phase of its life cycle. The initial phase by contract, is defined as a period of two years from the date of CAI at each site. This method includes both field (on-site) and depot level support. After the interim period has expired, the maintenance responsibilities will be assumed by the FAA. Under the ICMLS concept the following provisions apply:

Responsibilities: The ICMLS contractor is responsible for all maintenance activities performed on all HID/NAS LAN equipment installed in its operating environment. Site maintenance will include removal and replacement of LRUs, preventive maintenance actions (cleaning, adjustment, etc.) and system test and troubleshooting as required. Faulty LRUs will be repaired by the contractor. During the initial period of contractor maintenance, the contractor will provide a 24 hour trouble desk telephone number on which the site technician will call the contractor's trouble. The HID/NAS LAN will use this line to report hardware status, fault information and hardware failures. These calls (via 1-800) are only for HID/NAS LAN hardware status reporting and do not include information on the status of the HID/NAS LAN's application programs, which the HID/NAS LAN reports to the NSM. The ICMLS contractor will coordinate with AF personnel to determine the nature of the failure. The contractor will dispatch a local field engineer to facilitate the repair.

Contractor response will be in consonance with the MTTR and MTTRS established for the HID/NAS LAN. Initial restoration of service will normally be accomplished by shifting from the on-line equipment to the backup equipment.

After the interim period of contractor support has elapsed, the HID/NAS LAN will be maintained using the SMLS maintenance concept. Under SMLS and as specified in the contract, initial on-

site and depot level maintenance is performed by the contractor until two years after Contractor Acceptance Inspection (CAI), at which time the FAA will provide supply and repair support. ICMLS will be provided beginning with the first equipment installation and continue until all hardware and software has been implemented. Upon completion of equipment installation, supply support and repair of LRUs will be the responsibility of the FAALC. The FAALC (AML) has determined that Contractor Depot Logistics Support (CDLS) will be the preferred maintenance concept following the Interim Contractor Logistics Support (ICMLS) phase of the program.

Under SMLS maintenance response times will be better and the FAA will become self sufficient, exercising full control, authority and responsibility for site maintenance activities. Second level engineering hardware and software support will be provided by AOS ensuring a continuous support posture.

Reference: DRAFT HID/NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

3.5-3.19 (Reserved)

3.20 Status Assessment.

AF personnel resource availability for site preparation and planning may impact the implementation schedule.

4.0 AT OPERATIONS

4.1 Summary of AT Operational Impacts

4.1.1 Transitory State

There are no known impacts to AT operations due to site implementation.

4.1.2 Operational State

No changes to AT operations are anticipated due to site implementation of the HID/NAS LAN

Reference: Draft Program Plan for Aeronautical Data Link Systems, dated October 5, 1995

4.2. AT Procedural Changes

4.2.1 ATC Operational and Management Procedures

HID/NAS LAN will add no changes to national AT operational and management procedures.

4.2.2 Flight Procedures/Standards

The HID/NAS LAN is not expected to introduce any changes to AT flight procedures/standards.

4.2.3 Administrative and Management Procedures

The HID/NAS LAN is not expected to introduce any changes to AT administrative and management procedures.

4.2.4 Software Verification Procedures

AT software verifications procedures will not be required.

4.2.5 Inter-facility Procedures

HID/NAS LAN is not expected to introduce any changes to AT interfacility procedures.

4.2.6 Personnel Certification Procedures

HID/NAS LAN is not expected to introduce any changes to AT personnel certification procedures.

4.2.7 System Back-up/Cutover Procedures

The contractor will be required to provide a plan for integration the HID/NAS LAN into the NAS.

4.2.8-n (others as needed)

4.3 AT Implementation

The HID\ NAS LAN implementation is not expected to require participation of AT personnel.

4.4-4.19 (Reserved)

4.20 Status Assessment

There are no known AT operation risks associated with the HID/NAS LAN implementation. However, any delay in the HNL implementation could cause the loss of CTAS at ZDV and ZFW after November 30, 1997 due to the removal of the PAMRI emulator.

5.0 SYSTEM CONFIGURATION AND ENGINEERING

5.1 NAS Level Architecture

5.1.1 NAS Target State

The current NAS-SS-1000E dated March 1996, list four elements: Air Traffic Control element, Ground-to-Air element, Interfacility Communications element, and Operations and Maintenance Support element. The mission of the ATC element is to provide processing capabilities to support operational services provided to users. The ATC element is comprised of five subelements: Area Control Facility, DUAT Service, Automated Flight Service Station, National Aviation Weather Processing, and Traffic Management Facility. The ATC element will interface both functionally and physically with the external users, external supporters and other NAS elements. The current National Airspace System includes four elements, eighteen subelements, and seventy-five subsystems. The HID/NAS LAN System has been added to the Area Control Facility Subelement.

Reference: Draft Program Plan for Aeronautical Data Link Systems, dated October 5, 1995.

5.1.2 Inter-program interfaces

At present, the HID/NAS LAN will interface with the NAS programs listed in the following subparagraphs. Figure 5-1, HID/NAS LAN Connectivity to other NAS Subsystems, illustrates the relationship between HID/NAS LAN and its interface with other NAS subelements and subsystems.

Reference: Draft Program Plan for Aeronautical Data Link Systems, dated October 5, 1995

5.1.2.1 Interface with CTAS

The CTAS system will reside on a device that is interfaced to an Ethernet LAN. This Ethernet LAN interfaces with the HNL router on the FDDI NAS LAN.

5.1.2.2 Interface with AERA

The AERA system will reside on a device that is interfaced to an Ethernet LAN. This Ethernet LAN interfaces with the HNL Router on the FDDI NAS LAN.

5.1.2.3 Interface with ETMS

The ETMS system will reside on a device that is interfaced to an Ethernet LAN. This Ethernet LAN interfaces with the HNL Router on the FDDI NAS LAN.

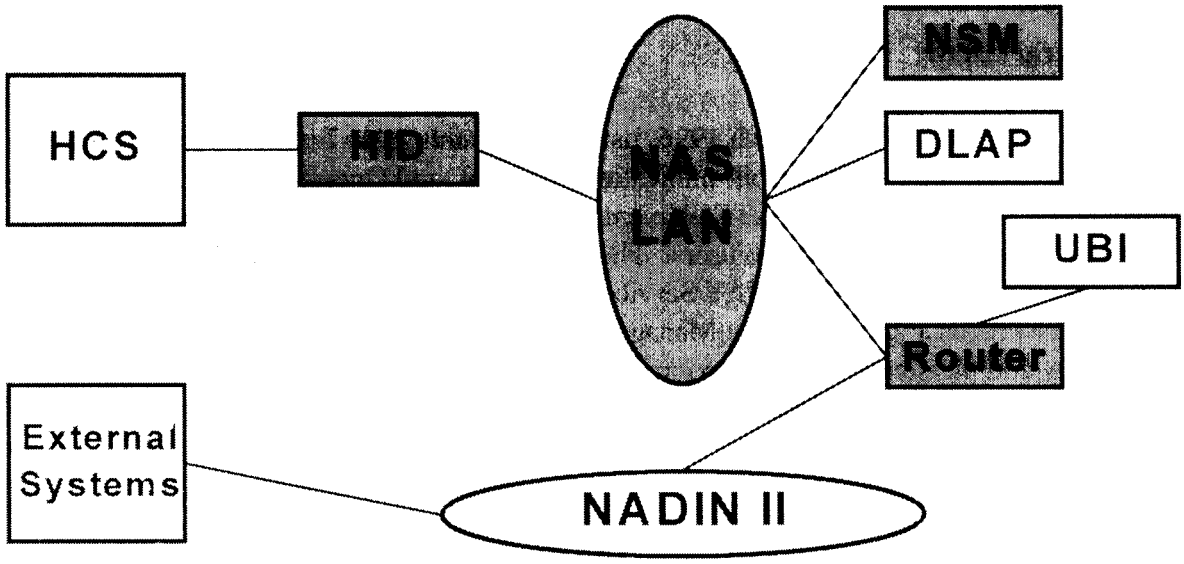

Figure 5-1 HID\NAS LAN Connectivity to Other NAS Subsystems

5.1.2.4 Interface with HCS

The HID provides the interface to the HCS for the UBI automation program users.

5.1.2.5 Interface with NADIN II

The HID/NAS LAN and UBI automation users will access NADIN II via the HNL router on the FDDI NAS LAN.

Reference: Draft Prime Item Product Specification for the HID/NAS LAN, dtd 1/30/97

5.1.2.6 Future Program Interfaces

In the future, the HID/NAS LAN will interface with the DLAP to provide ADLS services and then with the future Common Data facility which will interface with the UBI automation program.

Reference: Draft Program Plan for Aeronautical Data Link Systems, dated October 5, 1995.

5.2 Platform Architecture

The HID/NAS LAN will provide one link of the communication infrastructure between the HCS and the en route ADLS as well as between the HCS and other NAS UBI automation programs at the ARTCCs.

The HNL, as depicted in figure 5-2, HNL Topology, is a Fiber Distributed Data Interface (FDDI) LAN providing a communication exchange environment between nodes attached to the HNL through the FDDI concentrator. The HNL platform, including the COTS software, is deployed identically to each of the 22 installation sites. The field life and necessary support period for the HNL is expected to be 7 years.

Reference: Draft Installation and Checkout Plan (SINCOP) for WJHTC, dated 4/8/97

5.2.1 Hardware

The HID/NAS LAN system shall consist of the following system elements:

- HID (2)
- NAS LAN (including at least two FDDI concentrators)
- HNL Router (2)
- NSM (RISC Based Processor with Netview)
- Software (COTS)
- Racks
- Cables

Host Interface Device: an IBM RISC System/6000 processor running the IBM AIX Version 4 operating system. It is used to communicated between the FDDI LAN users and the Host Computer System (HCS). The HID supports the IBM System/370 Input/Output Channel protocol to synchronize data transfers between the HCS and the HID. The HID also support the International Standards Organization (ISO) 9314 FDDI protocols for data transmission with the LAN Application Processors.

Concentrator: consists of a set of ports proving an FDDI interface for the nodes that are connected to the HNL. The concentrator in use for the HNL is a CISCO CDDI/FDDI C1400 concentrator which will be fielded to support 16 ports. Information coming into or leaving the HNL is directed through the concentrator to its destination.

Router: A CISCO series 4000 model 4500 multiport router. The CISCO router is powered by a MIPS RISC processor with 16 megabytes of system memory and 4 megabytes of flash memory. It also contains a serial port module with four serial ports (which can be configured to utilized an X.25 interface), two RS232 ports (one console and one auxiliary port which a portable ASCII terminal may be attached to configure or perform system maintenance on the router, one dual-ring FDDI interface module and an ethernet port module containing six 10BaseI ethernet ports to accommodate twisted-pair or shielded twisted-pair network cables via RJ-45 adapters.

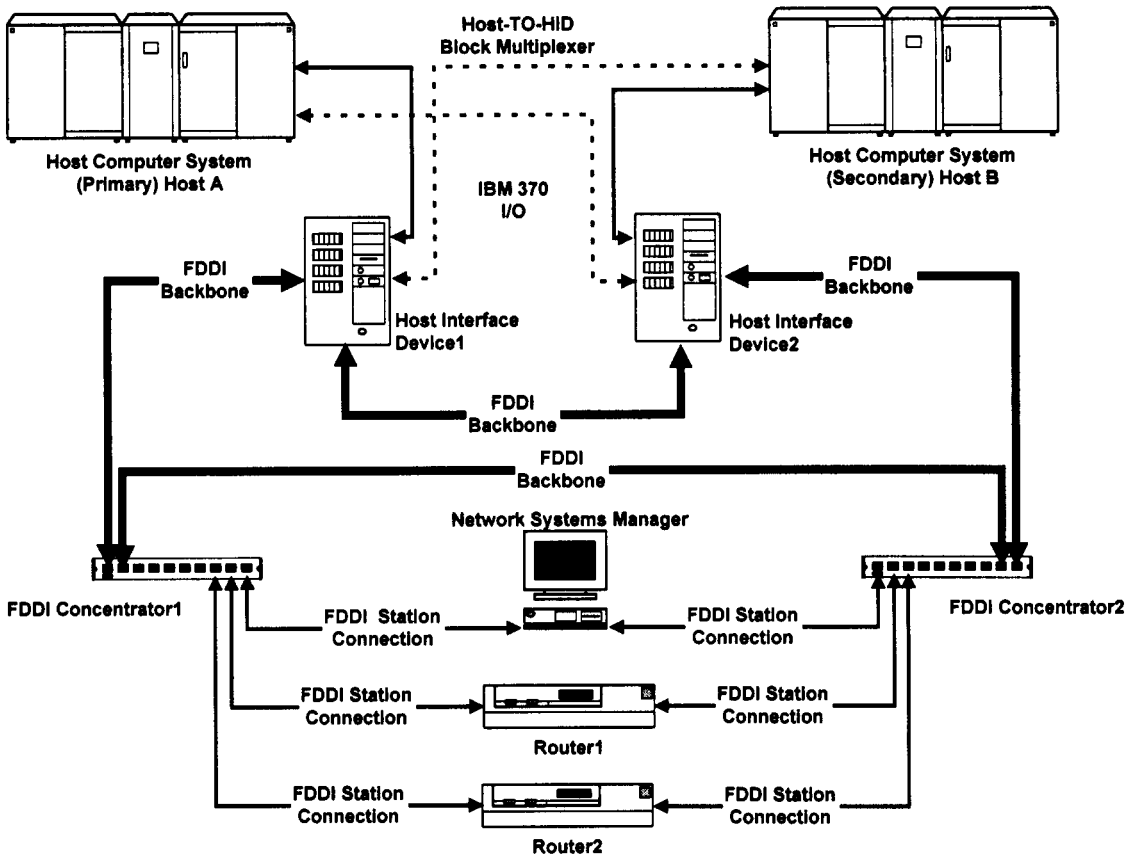

Figure 5-2. HNL Topology

The CISCO router will be interconnect to the HNL component architecture. The out-of-box capabilities of the CISCO series 4000 router allows for the accomplishment of the primary task of routing packets through Serial, FDDI and Ethernet interfaces. It is capable of handling X.26, TCP/IP protocol suite, and many more protocols.

System Components: The HNL system, which is fully compatible wit the Government furnished HNL application software is comprised of all COTS components. All the HNL components reside in COTS modular technical rack enclosures. These rack enclosures and the workspace for the NSM position are the Wright Line LAN Management System II (LMS II) modular product line. the Wright Line components are EOS/EDS/American National Standards Institute (ANSI) certified and have a lifetime warranty. Figure 5-3, Front Elevation, shows the equipment cabinets and the NSM workspace with the HNL system components in place. Figure 5-4, Front Perspective and Figure 5-5, Rear Perspective, depict views with the cabinet doors closed.

Figure 5-3. Front Elevation

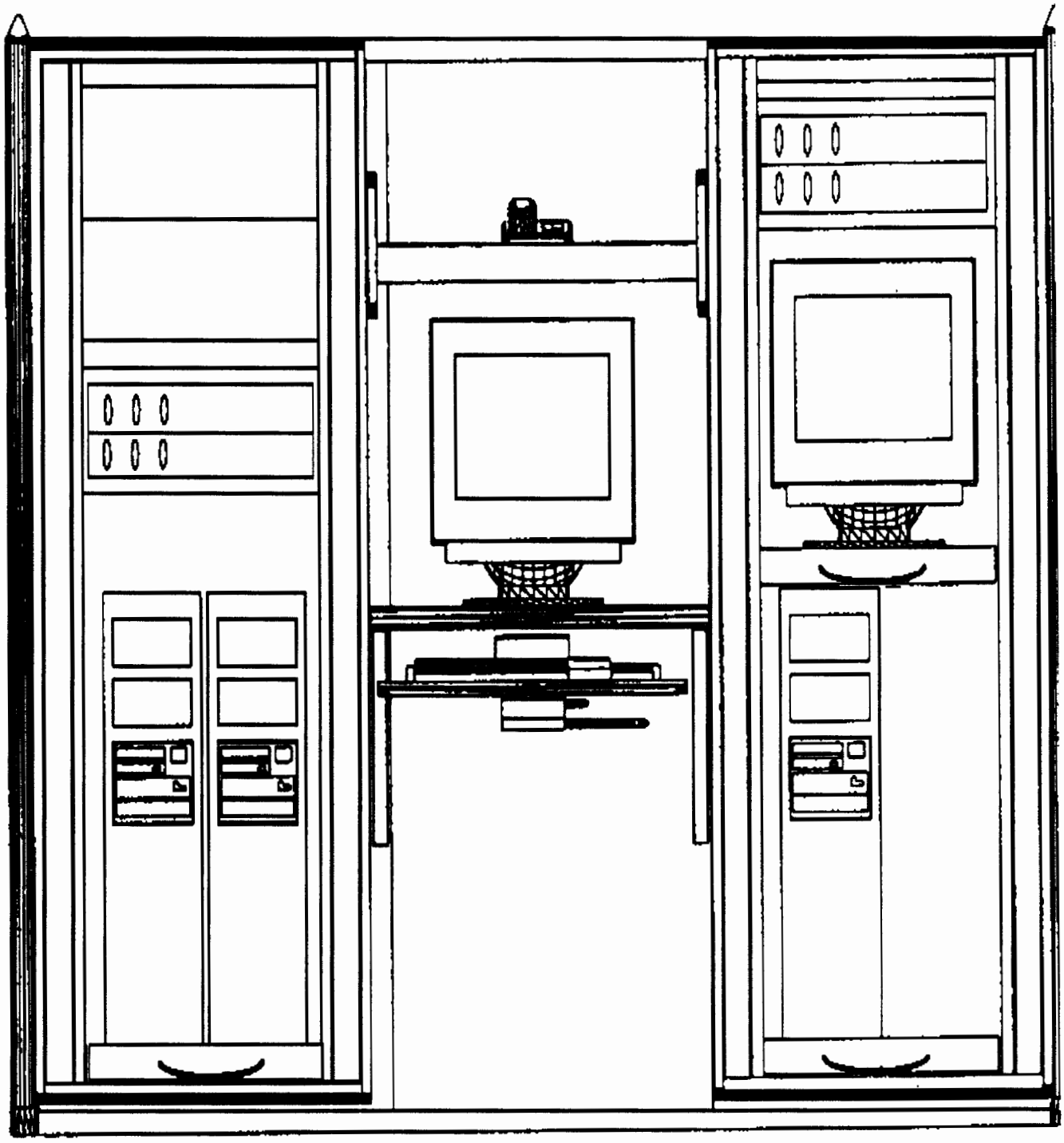

Figure 5-4. Front Perspective

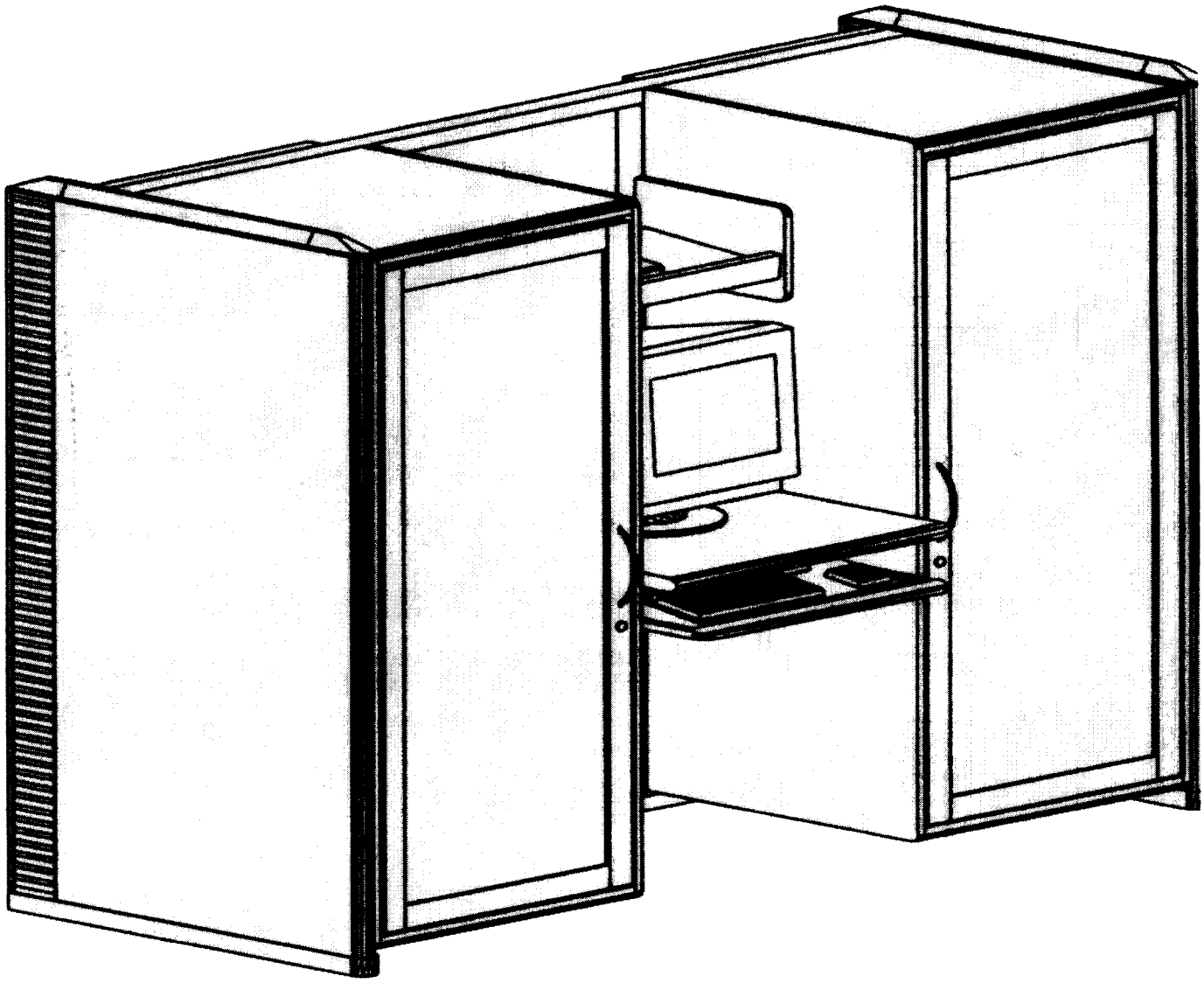

Figure 5-5. Rear Perspective

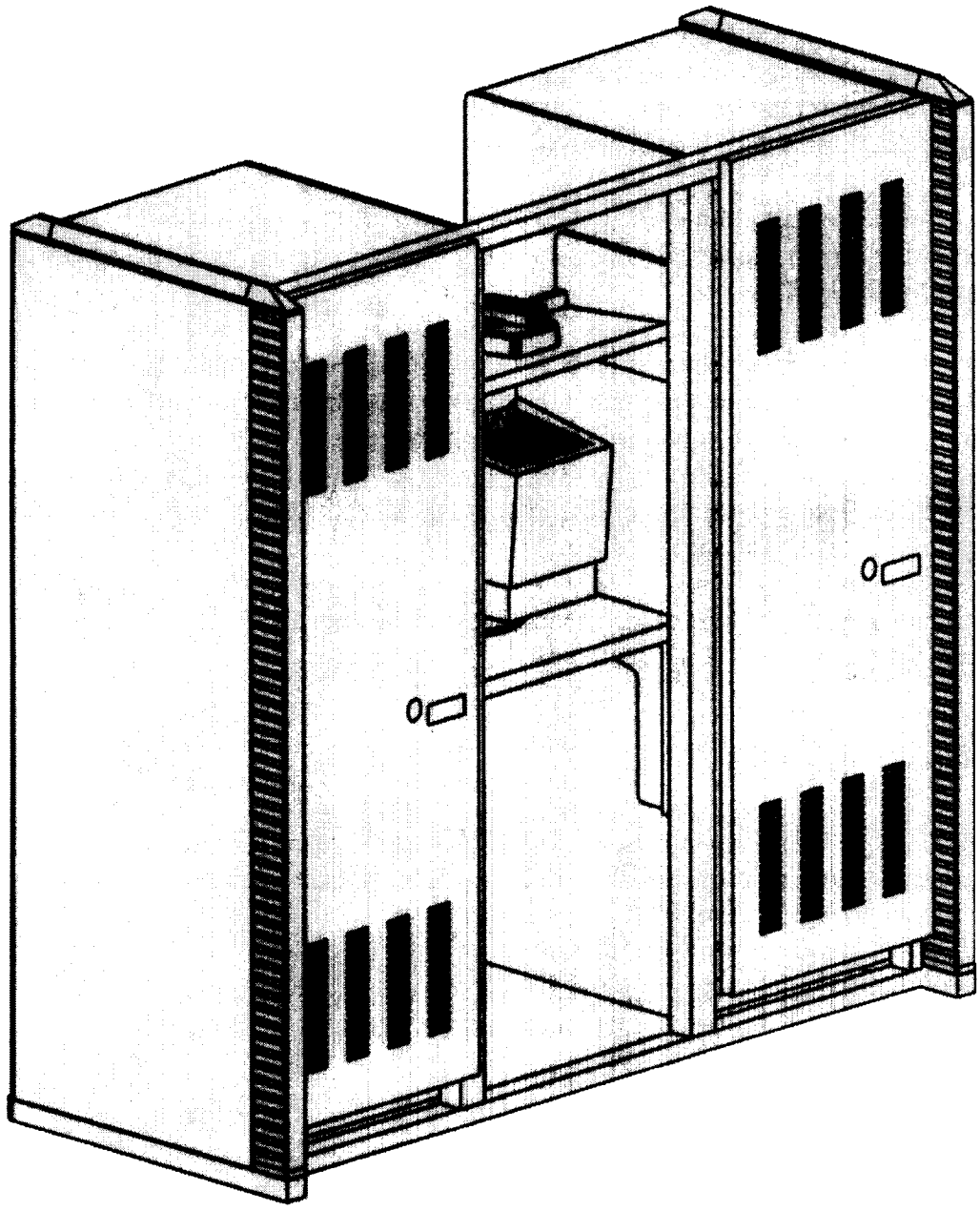

Figure 5-3 depicts room for expansion in the racks, (4 rollout shelves) to allow for future installation of the Data Link Applications Processor (DLAP) without expansion. Each enclosure contains two, 19-inch racks with lockable front and rear doors for security. The front doors are tinted Plexiglas for easy viewing of enclosed equipment. Each rack features rollout shelves for easy maintenance and installation of the IBM C20 processors. IBM manufactures the model C20s in a tower enclosure. Special COTS hardware tiedowns installed on the rollout shelves securely fasten the C20s for stability. Each enclosed rack is equipped with ventilation grills at the bottom and through the top of the rack. Air flow through the raised floor in the computer room of the Air Route Traffic Control Center (ARTCC) ventilates and cools the equipment without any special need of additional cooling fans (the HNL System is expected to be collocated with the HCS or on a raised floor with pressurized air underneath). Modular shelves and pullout keyboard trays are mounted on the Wright Line structural, steel-back frame to create a work position for the NSM Monitor, the keyboard, and the printer between the equipment enclosures.

A video terminal is located on a rollout shelf in the equipment rack for login and HID servicing. A lockable storage cabinet with shelves provides storage to house technical manuals, media, and possibly spare parts for the HNL System.

The footprint of the three integrated cabinets is 75.6" W x 32.6" D (with the cabinet covers installed). The floor loading per square foot from the total of the cabinets plus the equipment within the foot print is 1600 lbs/17.6 square feet - 90.9 lbs. square feet.

A minimum of 26" at the front and the rear of the integrated cabinets (doors are 24") is required to allow for the cabinet doors to open for access and service.

Reference: Preliminary Level 1 - Maintenance Manual, dated January 1997, Draft Installation and Checkout Plan (SINCOP) for WJHTC, dated 4/8/97.

5.2.2 Target State Configuration

Each of the twenty CONUS ARTCCs will have a HID/NAS LAN system. The HID components will provide the communication interface to the HCS and other UBI automation users on the NAS LAN and will be redundant. The NSM graphic workstation will perform network management functions on the HID/NAS LAN. A network HNL router will provide access between the other UBI automation systems to the NAS LAN and to other FAA networks, such as NADIN II; the HNL router will be used by the ADLS.

5.3 Subsystem Level Architecture

The HID will provide the communication interface between the en route HCS and CTAS, AERA, ETMS, URET, and DLAP in support of ADLS and UBI requirements across the NAS LAN.

Reference: Draft Program Plan for Aeronautical Data Link Systems, dated October 5, 1995

5.3.1 Software

The following define software that shall be included with the HID/NAS LAN system. The functions provided by the supplied operating system , communications and maintenance software shall be fully compatible with the applications software being developed by the FAA for use with the HID NAS LAN system.

- The operating system shall be POSIX-compliant.
- The operating system shall have a command language and shall accept and process commands issued directly from directly connected CRT terminals.
- Communications software shall be provided that fully supports the interface requirements.
- Maintenance software shall be provided to perform self testing, fault isolation, and fault recovery. The maintenance software shall provide fault detection to the LRU level. The outputs of the maintenance software shall be accessible by FAA-developed application software.

Reference: Draft Prime Item Product Specification, dtd 01/30/97

5.3.2 Physical Specification

The foot print of the three integrated cabinets is 75.6" wide X 32.6" deep (with the cabinet covers installed). The floor loading per square foot from the total of the cabinets plus the equipment within the foot print is 1600 lb./17.6 square feet = 90.9 lb. square feet.

A minimum of 26" at the front and the rear of the integrated cabinets (doors are 24") is required to allow for the cabinet doors to open allowing for access and service.

Reference: Memo from CSC, dated 3/11/97

Table 5-1 reflects configuration of the HID/NAS LAN testbed and is provided for information purposes only:

5.4 System Security

The HID and NSM will operate as C2 secure systems in a trusted computing environment, as defined in the *Trusted Computing Base (Orange Book).* All HID/NAS LAN network management functions will be performed at the NSM. The NSM will require the use of unique passwords for access to the network management functions, and for each of the cooperating user system data base administration functions that are hosted on it. All communication between systems connected to the HID/NAS LAN and systems outside

Table 5-1. Physical Specification

ITEM NOMENCLATURE	PART NO.	QUANTITY
HOST INTERFACE DEVICE (HID):		
IBM RISC/6000 model C20	IBM-7009-C20	2
includes		
120 Mhz PowerPC 604 processor	No Part Number	2
1.1 GB SCSI-2 Disc Drive	IBM-7009-9130	2
3.5" 2.88 MB Disc Drive	IBM-7009-9282	2
Internal Quad-Speed CD ROM Drive	IBM-7009-9606	2
Language Group US English	IBM-7009-9300	2
Power Cord US/Canada	IBM-7009-9800	2
AIX 4.1.2 Software Preload US	IBM-7009-5005	2
Upgrade to 64 MB ECC Memory	IBM-7009-4025	2
5 GB Internal 8mm Tape Drive	IBM-7009-6147	2
FDDI Single Ring Adapter	IBM-7009-2724	2
FDDI Dual Ring Adapter	IBM-7009-2723	2
DSC/Camber IBM Channel Adapter	BMMA-01-61	4
Rack Mount Kit	No Part Number	2
NAS LAN:		
Fiber Concentrator (12 Ports)	IBM-8244-12F	2
Cable & Connectors	No Part Number	1
Equipment Rack	No Part Number	2
Storage Cabinet (lockable)	No Part Number	1

ITEM NOMENCLATURE	PART NO.	QUANTITY
NETWORK SYSTEM MONITOR (NSM):		
IBM RISC/6000 model C20	IBM-7009-C20	1
includes		
120 Mhz PowerPC 604 processor	No Part Number	1
1.1 GB SCSI-2 Disc Drive	IBM-7009-9130	1
3.5" 2.88 MB Disc Drive	IBM-7009-9282	1
Internal Quad-Speed CD ROM Drive	IBM-7009-9606	1
Language Group US English	IBM-7009-9300	1
Power Cord US/Canada	IBM-7009-9800	1
AIX 4.1.2 Software Preload US	IBM-7009-5005	1
Upgrade to 128 MB ECC Memory	IBM-7009-4026	1
5 GB Internal 8mm Tape Drive	IBM-7009-6147	1
FDDI Single Ring Adapter	IBM-7009-2724	1
FDDI Dual Ring Adapter	IBM-7009-2723	1
Upgrade 1.1 GB to 2.2 GB SCSI-2 Disk Drive	IBM-7009-3089	1
Power GXT150M Graphics Adapter	IBM-7009-2650	1
P70 17" SVGA Color Monitor	IBM-7009-3617	1
13W3 To 13W3 Display Cable	IBM-7009-4234	1
Keyboard, 101-Key, US English	IBM-7009-6010	1
Mouse	IBM-7009-6041	1
Printer, Dot Matrix	No Part Number	1
Rack Mount Kit	No Part Number	1
ROUTER:		
Modular Multi-Protocol Router	CISCO-4500-M	2
Ethernet Module (6 Ports)	NP-6E	2
Dual Attached Multimode FDDI Adapter	NP-F1-D-MM	2
Serial Port Adapter (4 Ports)	NP-4T	2
8MB Memory Upgrade (Replaces 4MB Shared Memory)	MEM-NP8S-R4-P	2
8MB Memory Upgrade (Replaces 4MB Flash Memory)	MEM-NP8F-R4-P	2
16MB Memory Upgrade (Replaces 8MB Main Memory)	MEM-NP16M-R4-P	2
EIA 530 Cable, Male DTE	CAB-530MT	2
Rack Mount Kit	ACS-NPRM	2
SOFTWARE LICENSE AND DISTRIBUTION		
Basic 1-Time Charge, Proc Grp D5, Unlimited Users (HID)	IBM-5765-393-3602	2
Basic MRM SPO CD-ROM (HID)	IBM-5692-AIX-1004	2
Basic 1-Time Charge, Proc Grp D5, Unlimited Users (NSM)	IBM-5765-393-3602	1
Basic MRM SPO CD-ROM (NSM)	IBM-5692-AIX-1004	1
EUI/NetView for AIX (NSM)	IBM-5765-527-0149	1
Netview 4.1.4/AIX SNMP Manager, 1-2 User License (NSM)	IBM-5765-527-0158	1
CISCO 4500/4700 IOS Enterprise Feature Set	SF-G45A-11.0.5	2

the ARTCC will be through the HNL Router. The HNL Router will filter access from systems outside the ARTCC and will restrict access by filtering messages based on source and destination address, protocol, and port. The configuration and activation of these filters will be controlled from the NSM.

Reference: Draft Prime Item Product Specification for the HID/NAS LAN, dtd 01/30/97

5.5-5.19 (Reserved)

5.20 Status Assessment

There are no known risks regarding the system configuration of the HID/NAS LAN.

6.0 PHYSICAL FACILITIES

6.1 Real Estate

6.1.1 Real Estate Requirements

There is no requirement for acquisition of real estate for the implementation of the HID/NAS LAN.

6.1.2 Real Estate Plans

This is not applicable, HID/NAS LAN requires no new real estate acquisition.

6.2 Heating, Ventilation & Air Conditioning (HVAC)

6.2.1 HVAC Requirements

The HID/NAS LAN shall be designed to operate at temperature with the range of +16°C to +32°C and at relative humidity within the range of 8% to 80%. Under non-operating conditions, the HID/NAS LAN shall not be damaged by exposure to temperature with the range of -50°C to +70°C and relative humidity of up to 100% (above +40°C, the relative humidity shall be based upon a dew point of +40°C).

6.2.2 HVAC Plans

The ARTCC end-state drawings depict an HVAC system circulated under raised floors. The plans are to install the HID/NAS LAN racks then cut incision into the floor tile to permit airflow though the rack.

However, some ARTCCs have been upgraded to include the raised floors. Therefore, temporary installations of HID/NAS LAN equipment may be necessary until completion of the site upgrades which would include deinstalling other equipment and installing raised floors. In those cases, normal room air conditioning will be adequate to cool the HID/NAS LAN.

Reference: Draft, Prime Item Product Specification, dated 01/30/97

6.3 Cables

6.3.1 Cable Routing/Raised Floor Requirements

The IBM BUS and TAG Cable™ connect the Host computer system to the HID. The maximum single cable run should not exceed 250 feet. If alternate locations are required cable requirements should be afforded the highest consideration.

All cables interconnecting elements of the HID/NAS LAN system are COTS cables.

Reference: Draft Prime Item Product Specification for the HID/NAS LAN dated 01/30/97; HID/NAS LAN Statement Of Work; Draft SINCOP Plan, Technical Center, CDRL B03, dtd 4/97

6.3.2 Cable Plans

All external cables have identical labels at both ends. The information contained on the labels is as follows:

- Line 1 gives the wire number and signal names
- Line 2 and 3 identifies the termination point of each cable connector

The following steps are a guide to installing and routing cables:

a. Dress the cables through the cable opening in the rear of the HNL cabinet floor. Ensure cables are long enough to permit a generous service loop.

b. Before seating each cable connector, twist and form the cable so its seats squarely into its destination module connector without torque when the cable is dressed in the cabinet, then install each cable connector squarely into its destination module connector.

The Bus and Tag channel interface cables run from the HNL equipment (HID) to a 3814 switch (which the FAA provides). This switch allows connection to a HCS 3083 on Channels A and 4.

Reference: Draft SINCOP Plan, Technical Center, CDRL B03, dated 4/97

6.4 Power

6.4.1 Power Requirements

The HID NAS LAN system will operate on FAA-supplied electrical power services available within the ARTCC in compliance with FAA-G-2100F. These services will be provided from a sites available Power Conditioning System (PCs). Overload protection and further distribution shall be designed within the HID/NAS LAN. The HID/NAS LAN will contain no more than seven single phase, fifteen ampere, 120 VAC circuits.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97; Power NCP #18880

6.4.2 Power Plans

Plans are to supply all AC power to the racks from the ACEPS critical bus located in the ARTCC. Plans are for the ACEPS to provide power to the racks. The individual equipment rack

will have standard overload protection, grounding and bonding, and interface to equipment within the equipment rack. An NCP (#18880) has been approved authorizing the HID/NAS LAN be added to the ARTCC critical power bus.

The HID/NAS LAN power distribution requirements are:

- each equipment unit will be provided with a single circuit breaker for supply-power overload protection, as well as a visible circuit breaker indicator.
- each equipment unit shall provide for the distribution of electrical power within the unit.
- power distribution will be in accordance with National Electrical Code (NFPA-70).
- circuit breakers shall be provided with a mechanical shield to prevent accidental tripping.
- design of the HID/NAS LAN will be such that the removal of power from any component cannot damage that or any other component.
- the HID/NAS LAN shall be designed to minimize the phase-to-phase load imbalance for three-phase power and meet the FAA load balance specified in FAA-STD-020.
- external wiring and cabling that interface with the power source will be in accordance with FAA-STD-032 and FAA-C-1217. All 15a, 110v, receptacles shall be LF-15R twist-lock per ANSI C73-73.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97 and NCP Case File number 18880

6.5 Physical Safety & Security

6.5.1 Security and Safety Requirements

The HID/NAS LAN shall include security provisions of FAA-STD-045. The HID and NSM shall operate as a Class (C2) Controlled Access Protection, secure system in a trusted computer environment, as defined in Section 1 and Section 2 of the DOD, Trusted Computer System Evaluation Criteria (Orange Book), CSS-STD-001-83. All HID/NAS LAN network management functions will be performed at the NSM.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97.

6.5.2 Security and Safety Plans and Procedures

All communication between systems connected to the HID/NAS LAN and systems outside the ARTCC shall be through the HNL router. The HNL router shall filter access from systems outside the ARTCC and shall restrict access by filtering messages based on source and destination address, protocol and port. The configuration and activation of these filters shall be controlled from the NSM only.

AIX and NetView for AIX provide security services to control access to the HNL and to the NetView for AIX application. These security services included services to provide network

authentication and identification, services to control access to specific HNL devices , and services to log and track user actions.

The NSM computer system incorporates two levels of users. The first is the "super user" of systems administrator. The system administrator is responsible for installing and configuring the software as well as administering the security policy. The system administrator distributes "operator" accounts that will be used by the NSM operators who monitor the HNL. The operator has the ability to monitor the LAN components, run configuration reports, and back up data, but are not allowed access to configure the NSM software.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97; Preliminary Level Maintenance Manual dtd 01/97

6.6 Environmental / HAZMAT

6.6.1 Environmental Requirements

Asbestos abatement is a concern. Floor tiles at some sites may contain asbestos and require replacement. This requirement will be assessed on a site by site basis with the Regional Associate Program Manager for Environmental Services (RAPMES) and will be resolved as part of site preparation.

Reference: In-Service Review Checklist Update, dtd 3/25/97

6.6.1.1 Monitoring

Refer to paragraph 6.6.1

6.6.1.2 Handling Hazardous Materials

Refer to paragraph 6.6.1

6.6.2 Environmental Plans and Procedures

Environmental impact procedures in accordance with FAA Order 1050.1 will be assessed on a site-by-site basis.

Reference: In Service Review Checklist Update, dated 3/25/97

6.7 Grounding, Bonding, Shielding & Lightning Protection

6.7.1 Grounding, Bonding, Shielding & Lightning Protection Requirements

The HID/NAS LAN bonding will be in accordance with FAA-STD-019 and FAA-STD-020. The HID/NAS LAN grounding and bonding shall be compatible with that of other equipment interface with the HID/NAS LAN.

Reference: Draft, the Prime Item Product Specification for the HID/NAS LAN dated 1/30/97.

6.7.2 Grounding, Bonding, Shielding & Lightning Protection Plans

A common AC ground derived from the AC power source in the ARTCC will be used for all AC power in the system. The HID/NAS LAN AC neutral will be kept separate from the equipment frame and signal grounds.

HID/NAS LAN chassis ground and communications ground will be isolated from AC neutral and will be connected to the ARTCC multipoint ground system. These connections will be made with 2 insulated #4 cables. These cables shall be marked with green tape at each end and at intervals each not exceeding 4 ft.

Reference: Draft, the Prime Item Product Specification for the HID/NAS LAN dated 1/30/97.

6.8 Space

6.8.1 Space Requirements

With all components installed, the cabinets and frames shall be designed for an average weight distribution of floor loading not to exceed 250lb/ft^2.

Equipment units shall provide front or rear access as needed for maintenance and repair activities.

Distance required for maintenance access between rows of equipment units shall be no less than 3 feet (0.6m) for front and rear access if required.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97.

6.8.2 Space Allocation Plans

NCP 19144 is being reviewed by the must reviewers. ASD-220 has put NCP 19144 on hold until the NCP applicable for the draft, Standard ARTCC End-State Equipment Layout drawing is approved and baselined. The space allocated for the HNL is in the Mod 2 area of the control wing basement.

6.9 Construction & Modification

6.9.1 Construction and Modification Requirements

Site specific work-around may require minor construction work as determined by site surveys.

6.9.2 Construction and Modification Plans

Site specific work-around may require minor construction work as determined by site surveys.

6.10 Telecommunications

6.10.1 Telecommunications Requirements

The HNL router shall support communications between user systems and systems outside the ARTCC such as NADIN nodes, adjacent ARTCCs and TRACONs. The HNL shall serve as a router for communications between user system and systems outside the ARTCCs.

Reference: Draft, Prime Item Product Specification for the HID/NAS LAN dated 1/30/97

6.10.2 Telecommunications Plans and Procedures

Interface requirement documents (IRDs) and NCPs have been prepared and submitted.

6.10.3 Telecommunications Plans and Procedures for Future Interfaces

The future interface between the HID and the DLAP will be developed during the en route ADLS implementation and HID/CDF is expected to be developed during the AUA En Route Phase II program. Both will occur after the HID/NAS LAN transitions to the NAS.

Reference: Program Plan for Aeronautical Data Link Systems, dated October 5, 1995

6.11-6.19 (Reserved)

6.20 Status Assessment

The Space NCP has been submitted for the HID/NAS LAN. Some centers may have to identify interim locations for the HNL, preferably in the HOST room, due to the construction work scheduled for the Mod 2 area at all ARTCCs. The maximum distance from the HCS is two hundred fifty (250) feet.

7.0 FINANCIAL RESOURCES

7.1 Summary of Funding Plan

The NAS LAN is jointly funded by AUA-200, AUA-500 and AND-720.

7.1.1 AUA

AUA 200/500 provides funding through the En Route IPT, CIP Item 21-13 and the Traffic Flow Management IPT CIP Item 21-06. AUA will fund 5/6 of the cost to develop, procure, test, and deploy the HID/NAS LAN.

7.1.2 AND-720

AND-720 provides funding through the Aeronautical Data Link IPT, CIP C-20. AND will fund 1/6 of the cost to develop, procure, test, and deploy the HID/NAS LAN. To date, AND has funded the procurement and subsequent testing of a HID/NAS LAN test site located at the WJHTC. In addition, AND funded the RE&D and delivery of the Host Monitor Code developed software.

7.2 Facilities and Equipment (F&E) Budget

7.2.1 F&E Budget Requirements

Budget shortfalls in the FY98 through FY 02 budget will negatively impact the planned procurement and deployment of the HID/NAS LAN and effect the UBI automation programs, such as CTAS, AERA, and ETMS.

7.2.2 Summary of F&E Funding Status

Required F&E Funds:

Prior Years	$4.910
FY97	2.837
FY98	3.519
FY99	3.270
FY00	1.438
FY01	.117
FY02	.007
TOTAL:	$16.098

7.3 Operations and Maintenance (O&M) Budget

7.3.1 O&M Budget Requirements

O&M cost for the HID/NAS LAN will be an AF Operations budget item and will begin after installation plus two (2) years.

Reference: Draft NAS Integrated Logistics Support Plan, dated 3/8/97.

7.3.2 Summary of O&M Funding Status

Estimates of projected O&M cost for the life cycle of the equipment will be provided to AF so that adequate funding requests can be submitted.

7.4 Research, Engineering and Development (RE&D) Budget

7.4.1 RE&D Budget Requirements

There are no RE&D budget requirements for the HNL.

7.4.2 Summary of RE&D funding Status

There are no RE&D funding requirements for the HNL.

7.5-7.19 (Reserved)

7.20 Status Assessment

Funding shortfalls beyond mid-FY 1998 will impact the deployment schedule of the HID NAS LAN to the remaining centers.

8.0 HUMAN RESOURCES

8.1 Human Resource Management

8.1.1 Impacts of Acquisition on Human Resource Management

The following subparagraphs summarize the potential impacts of the HID/NAS LAN acquisition on each of the human resource management elements.

8.1.1.1 Personnel Security

ACT-350 is currently working on the development of the security plan for the HID/NAS LAN to include verification /certification of all security requirements and verification and validation of all LAN/WAN security features.

Reference: Post Award Conference briefing, dtd February 27-28, 1997.

8.1.1.2 Relations with Local Communities

The HID/NAS LAN will not affect relations with the local communities.

8.1.1.3 Relations with Aviation Community

The HID/NAS LAN acquisition will provide user benefits to the aviation community as part of the en route ADLS and other UBI systems.

8.1.1.4 Employee Work Environment

The HID/NAS LAN acquisition is not expected to have a major impact on the employee work environment.

8.1.1.5 Employee Job Satisfaction

The HID/NAS LAN acquisition is not expected to have any impact on the employee job satisfaction.

8.1.1.6 Labor-management Relations

The HID NAS LAN program office has met with AFZ-300 to discuss the project and determine bargaining unit impact based on AHR-12 questionnaire. The program office has completed the AHR-12 guide for notification for deployment to the Unions and provided it to AHR-12. A letter dated 3/31/1997 from PASS has approved the deployment of the HNL.

Reference: In-Service Review (ISR) Checklist Meeting, dtd 2/25/97; Letter from PASS National President, dtd 3/31/97

8.1.1.7 Organizational Structure(s)

Existing FAA policies remain in effect. HID/NAS LAN implementation and operation is not expected to have any impact on the organizational structure of individual sites.

8.1.2 Human Resource Implementation Strategies

Implementation of the HID/NAS LAN will involve close coordination with PASS and other employee representation groups to assure minimum human resource impact.

Reference: In-Service Review (ISR) Checklist Meeting, dtd 2/25/97.

8.1.3 Security Clearances

The TOR may wish to establish local procedures for processing temporary site access for identified contractor personnel. It is assumed that security escorts will be required at least during site surveys, site preparations and installation at the ARTCCs.

8.2 Staffing

8.2.1 Impacts of Acquisition on Staffing

A preliminary engineering estimate has been developed and is titled DRAFT Staffing Standard. The standard is considered a Future Facility Estimate based on available data presented for review and examination at the time of development. It will identify the employee hours, or fractions thereof, required to maintain the HID/NAS LAN. Both preventive and corrective maintenance requirements are included along with ancillary tasks as defined in the FAA Order 1380.40C (Airway Facilities Sector Level Staffing Standard System) Chapter 3.

Reference: Draft HID\NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

8.2.1.1 Operational Workload

8.2.1.1.1 AF Work Force

Following CAI, the contractor will provide total site maintenance, restoration, repairs, and supply support for the HID/NAS LAN for the initial two years of its life cycle. This method includes both field (on-site) and depot level support. After the interim period has expired, the maintenance responsibilities will be assumed by the FAA.

After the interim period of contractor support has elapsed, the HID/NAS LAN will be maintained using the Structured Maintenance and Logistics Support (SMLS). Under SMLS, initial on-site and depot level maintenance is performed by the contractor until two years after CAI, at which time the FAA will provide supply and repair support. ICMLS will be provided beginning with the first equipment installation and continue until all hardware and software has been implemented. Upon completion of equipment installation, supply support and repair of LRUs

will be the responsibility of the FAALC. The FAALC will determine whether to provide the repair support organically or via contract(s).

Second level engineering hardware and software support will be provided by AOS ensuring a continuous support posture.

Reference: Draft NAS Integrated Logistics Support Plan, dtd 3/8/97

8.2.1.2 Implementation Workload

8.2.1.2.1 AF System Management Office (SMO) Personnel

RAPMs for the HID/NAS LAN have been identified. Coordination and planning activities will be scheduled. A TOR for each ARTCC will coordinate site level tasking. During the implementation phase, the TOR will be the Government's designated representative to act as an observer during the site survey, site preparation, equipment installation and cumulating with site acceptance testing as demonstrated by the

8.2.1.2.2 Air Traffic (AT) Workforce

8.2.2 Staffing Plans

There are no impacts to the AT workforce.

8.2.3 Staffing Schedule

Refer to paragraph 8.2.2.

8.3 Training

8.3.1 Training Program

The HID/NAS LAN training program will include courses of instruction developed in a joint effort by the FAA Academy and CSC.

The strategy for the HID/NAS LAN Airways Facilities (AF) training will require that CSC and the FAA Academy develop lesson plans and other material to support system administration, hardware maintenance, system operations/configuration and second level software maintenance courses. The first System Administrator class will be taught to FAA academy instructors, William J. Hughes Technical Center (WJHTC) AOS-300 engineers, and personnel from the site of first installation and perhaps personnel from other sites depending upon the pace of equipment installations. FAA Academy instructors will teach the Hardware/Operations Configuration classes to site technicians. The second level software maintenance course will be a one-time class course taught to WJHTC AOS-300 personnel at the Technical Center. This course may be augmented by a self paced On-the-Job-Training (OJT) manual. Consideration will be given to development of a Computer Based Instruction (CBI) program for refresher training of for the training of replacement software engineers.

The maintenance concept for the HID/NAS LAN calls for Structured Maintenance and Logistics Support (SMLS) for the system life cycle, therefore, no depot level training is required.

The Academy and CSC will undertake a joint planning effort to ensure that all courses include both hardware and software information. A combination of lecture and hands-on equipment training will be provided. Academy instructors will conduct the hardware maintenance classes and CSC will conduct the operations configuration classes. Follow-on training will be conducted by FAA instructors at the Academy. Students will be trained in time to support each site prior to FAA acceptance of maintenance responsibility.

8.3.2 Training Support

Academy instructors will conduct the hardware maintenance and operations configuration classes. Follow-on training will be conducted by FAA instructors at the Academy. Students will be trained in time to support each site prior to FAA acceptance of maintenance responsibility.

8.3.3 Personnel Skills

The HID/NAS LAN Maintenance Training Course pre-requisites are

Course Number	Title
44415	Microprocessors
47402	Fundamentals of Computer Software
47403	Computer Hardware Fundamentals
47404	Data Communications

The Second Level Software Maintenance Training Class pre-requisites are that students must be familiar with C and Assembler programming

Reference: Draft, HID\NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

8.3.4 Training Quotas

Personnel will need to be trained from the WJHTC, FAA Academy and 20 ARTCCs on the HID/NAS LAN Maintenance Training Course.

Personnel Trained	Number
Qualified AF ARTCC Personnel	TBD
WJHTC (AOS-300)	TBD
Academy Instructors	TBD

TOTAL	TBD

Second Level Software Maintenance Training Class

Personnel Trained	Number
WJHTC (AOS-300)	TBD
Academy Instructors	TBD
TOTAL	TBD

8.3.5 Training Schedule

Table 8-1 Training Schedule

System Administrator Course (1st Course)	07/09/97 - 07/29/97
System Administrator Course (2nd Course)	09/03/97 - 09/23/97
System Administrator Course (3rd Course)	09/24/97 - 10/14/97
Maintenance "Short" Course Waterfall Developed	08/01/97
Maintenance "Short" Course (1st Course)	08/15/97
2nd Level Maintenance Course (1st Course)	06/01/99
Operations and Configuration Class (1st Course)	06/01/99 - 06/14/99
Hardware Course (1st Course)	06/01/99 - 06/14/99

* As of 5/23/97 baseline schedule, subject to change.

8.4-8.19 (Reserved)

8.20 Status Assessment

The maintenance "short" course material is currently being compiled. This will be course #45416 and will be a 4 hour course conducted at each site by AMA-424 and will occur immediately after each site installation. The NAS NOMs are the required attendees for this course and any other personnel the site deems necessary to participate.

9.0 TEST AND EVALUATION

9.1 Overview of Test Program

ACT-350 is the Associate Program Manager for Testing (APMT) and responsible for all FAA testing of the HID/NAS LAN. To that end, the APMT has prepared an Operational Test and Evaluation (OT&E) Integration Test Plan dated 4/26/96 in compliance with FAA NAS Test and Evaluation Policy, dated October 22, 1992, FAA Order 1810.6 and FAA-STD-024B. The APMT has developed specific test procedures and failure scenarios to assess the technical and operational capabilities of the HID/NAS LAN. Software developed for the HID conforms with DOD-STD-2167 and MIL-STD-1521B. The HID/NAS LAN will be tested to demonstrate, verify, and validate compliance with all functional and performance requirements stated in the HID/NAS LAN functional specification. HID/NAS LAN testing will be based on a bottom-up building-block approach that takes a defined subset of HID/NAS LAN requirements and validates compliance of that building block with its requirements before proceeding to validate the next higher level of integration. Major test series will progress from the subsystem level up to the system test level. Special test requirements will be developed to accommodate each test phase. Functional capabilities of each successive building-block increase until the final building block implements all HID/NAS LAN system requirements. Test reports will be written and submitted for review and regression tests will be performed when required by the contract schedule. Regression tests will consist of tests that are repeated after software or hardware changes have been implemented, or upon delivery of software updates. Testing of other UBI automation programs which will use the HID/NAS LAN is not considered part of the HID/NAS LAN test program, but will follow the test procedures developed in coordination with AUA and the WJHTC. In the future, after the implementation and integration of the other en route ADLS equipment at the ARTCCs with the operational HID/NAS LAN, AND-720, in coordination with all cognizant parties, will conduct shakedown testing of the entire en route ADLS prior to transition and acceptance by the Regions and ATC.

Reference: HID/NAS LAN Operational Test and Evaluation (OT&E) Integration Test Plan, dtd 4/26/97

9.1.1 Government Test Program

Government testing activities for the HID/NAS LAN hardware and software originated with the monitoring of contractor conducted Developmental Test and Evaluation (DT&E) and concluded with the acceptance of a final system design approved by the FAA. OT&E System testing consists of three parts: Integration, Operational and Shakedown testing and is conducted by ACT-350 at the WJHTC. If required, OT&E system testing will be continued at Longmont, Colorado, the designated key site location. Factory Acceptance Testing (FAT) will be conducted at WJHTC. The contractor will conduct Site Acceptance Testing (SAT) at each ARTCC, to be witnessed by the FAA.

After Contractor Acceptance Inspection (CAI) activities for each installed system, and before Operational Readiness Demonstration (ORD) activities, there will be SAT or Field Familiarization Testing conducted by FAA at each operational site.

9.1.1.1 Test and Evaluation Master Plan (TEMP)

A TEMP was prepared by ACT-350 and approved in 1991 for the en route ADLS. In addition, ACT-350 has developed specific test procedures and failure scenarios to assess the technical and operational capabilities of the HID/NAS LAN based on this TEMP and later will test and evaluate the en route ADLS in its entirety. The en route ADLS TEMP specifies overall test requirements in accordance with FAA-STD-024B. A set of subordinate test plans will be developed to achieve specific test procedures for the HID/NAS LAN. Each test will be documented with test plans, detailed test procedures, and test reports in accordance with FAA-STD-024 and the requirements of the contract.

9.1.1.2 Developmental Test and Evaluation (DT&E)

DT&E will be conducted on the HID/NAS LAN hardware and HID software at the Contractor's facility and the WJHTC. DT&E test plans will be developed by the software Contractor and reviewed by ACT-350 for the Host monitor code and NSM software.

9.1.1.3 OT&E System Testing

OT&E will be conducted at the WJHTC during the development phase of the HID/NAS LAN and will be performed in accordance with FAA Order 1810.4B.

OT&E will identify and evaluate deficiencies in hardware, software, human factors, and operational concepts. It encompasses an interactive process to assure that when deployed, the new system will not interrupt existing NAS operability and functionality. Test and Evaluation will address the HNL system integration, effectiveness, suitability, supportability, reliability, and maintainability. Test procedures are developed addressing Critical Operational Issues (COIs).

OT&E test objective for the HID/NAS LAN are to:

a. Establish NAS end-to-end communication;
b. Verify the ability of the HID/NAS LAN to provide the necessary NAS subsystem data communications connectivity;
c. Verify the HID/NAS LAN's ability to support NAS data communications on a 24-hour a day basis, to provide network redundancy, and to recover system failures;
d. Verify an effective integration of the network at NAS subsystem and system levels;
e. Verify support hardware and software functionality, performance, and transmission media function on access;
f. Verify the NAS LAN functionality and performance in both normal and degraded modes of operation and demonstrate the operation of the NAS LAN under various loading conditions;
g. Verify all COI requirements

9.1.1.3.1 OT&E Integration Testing

Integration testing verifies the system's end-to-end performance and interoperability. Specifically, it verifies that system level requirements, as defined in NAS -SR-1000, NAS-DD-

1000, NAS-SS-1000, the Functional Specification, and Critical Operational Issues (COIs), are successfully implemented.

9.1.1.3.2 OT&E Operational Testing

Operational testing verifies the operational effectiveness and suitability of the equipment. LAN applications assist in the complimentary evaluation of OT&E testing to demonstrate end-to-end data transfer via the HID/NAS LAN.

Operational effectiveness is the ability of a system to accomplish and/or enhance the overall operational mission of the FAA. It is evaluated in the context of the organization, doctrine, tactics, and environment associated with the implementation of the NAS LAN system

Operational suitability is the ability of the system to meet operational requirements when operated and maintained by the field engineers. Consideration is given to such factors and reliability, maintainability, availability, safety, security, and human factors.

9.1.1.3.3 OT&E Shakedown Testing

Shakedown testing verifies and validates the system's operational effectiveness and suitability, including supportability maintainability by field personnel. Due to OT&E time constraints, shakedown testing is integrated into both Integration and Operational testing as applicable in and is identified in test categories.

Reference: HID/NAS LAN Operational Test and Evaluation (OT&E) Integration Test Plan, dtd 4/26/97

9.1.2 Contractor Test Program

9.1.2.1 Contractor Master Test Plans

CSC will prepare and deliver to the Government a Contractor's Test Plan (CTP) in accordance with FAA-STD-024b, which when approved by the FAA's test director, will serve as the overall test control document for CSC's HID/NAS LAN test program.

The plan will describe and clearly state the objective of each test that CSC will conduct to demonstrate the capability of the HID/NAS LAN system to meet the requirements of the Prime Item Product Specification. The plan will also describe, for each phase, CSC's approach to be used for the conduct and analysis of each test.

As applicable for each site, the CTP will provide for the following test phases:

a. Factory Acceptance Test (FAT) phase providing for a comprehensive test of all COTS hardware/software. The FAT phase will be performed at the WJHTC.
b. Site Acceptance Test (SAT) phase providing for a comprehensive checkout of an installed system. The SAT phase will be performed at each site.
c. Contractor Acceptance Inspection (CAI) providing for transfer of ownership of the COTS hardware/software to the Government. CAI will be performed at each site.

9.1.2.2 Developmental Test and Evaluation (DT&E)

DT&E testing activities were performed by the applications software Contractor as part of the software developmental process and monitored by ACT-350 as part of the design qualification testing.

9.1.2.3 Production Acceptance Test and Evaluation (PAT&E)

PAT&E of the HID/NAS LAN consists of the Factory Acceptance Test (FAT). A Factory Acceptance Test will be performed at the WJHTC. The purpose of the FAT is to ensure that the system is equipped as required and that all functions perform according to the HID/NAS LAN Prime Item Specification.

9.1.2.4 Contractor Acceptance Inspection (CAI)

The CAI is witnessed by the TOR and performed by CSC to demonstrate system functionality and the final integration step to transition the HID/NAS LAN into the ARTCC and NAS. Additionally, the CAI will primarily demonstrate the adequacy of design and installation.

Reference: HID/NAS LAN Statement of Work, dtd 2/20/97

9.2 T&E Schedule

Table 9-1. T&E Schedule

T&E Activities	Schedule Start	Schedule Finish
OT&E Test Plan Approved	12/10/96 (actual)	12/10/96 (actual)
OT&E Test Procedures Draft Complete	4/14/97	4/14/97
OT&E Integration, Conduct & Analysis	5/23/97	7/31/97
OT&E Test Complete	7/31/97	7/31/97
OT&E Test Reports (Final)	8/30/97	8/30/97

9.3 T&E Responsibility Matrix

Table 9-2. T&E Responsibility Matrix

Code	Responsibility
AND-720	Provide program management
ACT-350	Conduct OT&E Integration and Operational testing, monitors and witnesses testing and site evaluation
AOS-300	In coordination with AOS-500, responsible for second level engineering support. Provides engineering support for areas affecting second level maintenance capabilities.
ATQ-3	Conducts Independent OT&E on a new system in an operational environment.
ZDV	Keysite
Regions	Conduct field site evaluation/JAI activities
CSC	Conduct hardware verification, system checkout, contractor integration, CAI and SAT testing. Support OT&E and site evaluation testing.

Reference: Draft Integrated Logistics Support Plan, dtd 3/8/97

9.3.1 Government Test Organization

ACT-350 is the principal test organization for the HID/NAS LAN. They will conduct OT&E System testing at the WJHTC and at the first operational site. The key-site is Denver's ARTCC at Longmont, Colorado.

Table 9-3. Government Test Team

NAME	CODE	PHONE NUMBER
Gary Morfitt	ACT-350	609-485-6418
Vic Patel	ACT-350	609-485-5046
Kelly Mesveskas	ACT-350	609-485-4174
Martha Turk	AOS-370	609-485-7945
Doug Guido	AOS-320	609-485-6460

9.3.2 Contractor Test Organization

Site Acceptance Testing (SAT) will be conducted by CSC. The SAT shall consist of a final phase of tests required at each site. Plans and procedures for this activity will be provided in the Contractor's Test Plan deliverable to the Government.

Table 9-4. Contractor Test Organization

NAME	ORGANIZATION	PHONE NUMBER

Mike Semcheski	CSC Project Manager	609-383-8191
Kathleen Parsons	CSC Testing	609-383-8152
Carol Bitzberger	CSC Testing	609-383-8120
Robert Bogden	System Engineering	609-383-8049

9.4 T&E Field Support Requirements

9.4.1 Personnel Requirements

a. ACT-350 will identify WJHTC personnel need to support OT&E
b. AOS-300 will identify personnel need to support site evaluation.
c. Identified ZDV and ZFW AF personnel will support site evaluation and OT&E procedure development and conduct.

9.4.2 Test Equipment Requirements

The following hardware and software is required for security test execution:

a. Channel Interface Monitor (CHIM)
b. UNIX shell script, *stopHid*, resident on NSM hard drive
c. UNIX shell script, *startHid*, resident on NSM hard drive

The following hardware and software is required for interface test execution:

a. During the initialization of NAS, a TR patch to NAS is installed to allow the TR message to loop back to the HCS.
b. B500 Scenario compatible with A4e2.0 level of NAS
c. Initialization decks for A4e2.0 level of NAS
d. UNIX shell script, *stopHid*, resident on NSM hard drive
e. UNIX shell script, *startHid*, resident on NSM hard drive

The following hardware and software is required for interface test execution:

a. Develop test software resident on NSM hard drive
b. UNIX shell script, *stopHid*, resident on NSM hard drive
c. UNIX shell script, *startHid*, resident on NSM hard drive

Reference: Contractor's Test Procedures, FAT Test Procedures (Security, Interface, Maintenance/Diagnostics), dtd 4/97

9.4.4 Space Requirements

Minimal additional facility floor space in the basement of the ARTCC Control Wing will be required to support OT&E testing of the HID/NAS LAN System The HID/NAS LAN System is scheduled to be installed in the basement of the Control Wing however, depending upon site conditions, an alternate or temporary equipment installation may be required. Three integrated cabinets will be installed by the contractor. Front and rear access to these racks will be required with standard rack to wall clearances. A minimum of 26" at the front and rear of the integration cabinets should be allowed. The total dimensions including front and rear access 76" W x 85" D.

9.5 T&E Program Status

9.5.1 Test Results Summary

To be supplied after System Acceptance Testing currently scheduled for the WJHTC 5/97 and OT&E testing 8/97.

9.5.2 Outstanding Program Trouble Reports (PTR)

CSC's configuration management will identify problems prior to CAI to include COTS H/W and S/W, GFE software, installation, documentation, deployment.

Reference: CSC Post Award Conference, dtd 2/27/97

9.5.3 Discrepancy Correction Process

A Test and Evaluation log is maintained during actual testing to record the start and end of testing, anomalies, and discrepancies that occurred or deviations from procedure. The test director is responsible for keeping the test log and ensuring that events are properly recorded in the log. A Test Discrepancy Report is used to document each discrepancy. At the conclusion of each test run, the test director collects all printer output, magnetic tapes containing recorded data, Test and Evaluation logs, and Test Discrepancy Reports. Airway Facilities Service, AAF personnel and/or field operators may assist in the conduct of test cases which directly relate to field operators.

Reference: Final HID/NAS LAN OT&E Integration Test Plan, dtd 11/18/96

9.6-9.19 (Reserved)

9.20 Status Assessment

The OT&E System Test Procedures for the HID/NAS LAN are being developed by ACT-350. Deployment to the ARTCCs cannot begin until OT&E testing has been successfully completed.

10.0 SYSTEM SUPPORT

10.1 System Support Concept

10.1.1 Hardware

Under the Interim Contractor Maintenance Logistics Support (ICMLS), and in accordance with the provisions of the contract, the contractor will provide total site maintenance, restoration, repairs, and supply support (issuing, receipting and repairing LRUs) for the HID/NAS LAN for the initial phase of its life cycle. The initial phase is defined as the first 2 years after . This method includes both field (on-site) and depot level support. After the interim period has expired, the maintenance responsibilities will be assumed by the FAA.

After the interim period of contractor support has elapsed, the HID/NAS LAN will be maintained using the SMLS maintenance concept. Under SMLS, initial on-site and depot level maintenance is performed by the contractor until two years after Contractor Acceptance Inspection (CAI), at which time the FAA will provide supply and repair support. ICMLS will be provided beginning with the first equipment installation and continue until all hardware and software has been implemented. Upon completion of equipment installation, supply support and repair of LRUs will be the responsibility of the FAALC. Life-cycle cost analysis will be performed to determine the most cost effective method for depot level support. The decision will also consider operational requirements. As a result, the FAALC will determine whether to provide the repair support organically or via contract(s).

Under SMLS maintenance response times will be better and the FAA will become self sufficient, exercising full control, authority and responsibility for site maintenance activities. Second level engineering hardware and software support will be provided by AOS ensuring a continuous support posture.

10.1.2 Software

Software for the HID/NAS LAN will be maintained under the management of Operational Support Service AOS. All software maintenance will be accomplished at the FAA William J. Hughes Technical Center (WJHTC) by AOS personnel or support contract personnel under FAA guidance. Although located at the WJHTC, the support group provides skills to analyze and correct system-wide problems and assist sector support staffs in diagnosing difficult site problems.

10.1.2.1 On-site Software Maintenance

By system design, software maintenance for the HID/NAS LAN at the sites will be minimal. Software maintenance and configuration management will be controlled by AOS at the WJHTC. HID/NAS LAN software capabilities include building and implementing site-specific data bases, identification of software problems, collection of support data, and submission of the problem description and data to AOS for resolution. The HID/NAS LAN is capable of receiving new

software versions from AOS and of testing, verifying, and validating that the version or modification to existing software meets operational requirements for operational use.

10.1.2.2 Centralized Software Maintenance

AOS is the focal point for HID/NAS LAN second level software maintenance. Software maintenance conducted by AOS at the WJHTC consists of identifying problems, collecting supporting data, and recording and resolving reported problems. AOS has the capability of distributing new software versions and their related documentation to operational sites after testing and verification. AOS provides the necessary configuration management tools to manage the distributed software versions. AOS software maintenance activities ensure the initial release and subsequent updates to HID/NAS LAN software do not detract from the operational functions or current interfaces of the software being replaced.

10.1.2.3 Site Software Adaptation Support

Sites requesting site specific software adaptations will transmit the adaptation change requirements to AOS. Sites will maintain the old (previous) version of software until a new (next) version is available and has been operationally verified, downloaded, and cutover. AOS will compile the adaptation changes and send the new adaptation data to the site via download for cutover.

10.1.2.4 Site Simulation

AOS will maintain the ability at the WJHTC to replicate field sites to provide quick problem resolution.

Reference: Draft, HID\NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

10.2 Special Support Facilities

10.2.1 Mike Monroney Aeronautical Center

Refer to section 10.1.1 and 10.1.2

10.2.1.1 Restoration Response Level

The Mean Time to Repair (MTTR) the HID/NAS LAN shall be equal to or less than 30 minutes, for all hardware repairs and restoration of service in accordance with FAA Order 6031.31E. The FAA requirement for the mean time to restore services (MTTRS) shall be 30 minutes or less with a maximum 2 hour limit on any maintenance action. This repair time includes diagnostic time, removal of the failed LRU, replacement and installation of the new LRU including any adjustments or data loading necessary to initialize the LRU and all adjustments required to return the equipment to normal operation. The total MTTR resulting from an operating system software failure is 30 minutes, maximum.

10.2.1.2 Field Level Maintenance

The contractor will provide total site maintenance, restoration , repairs, and supply support (issuing, receipting, and repairing LRUs) for the HNL for two (2) years after CAI at each site.

10.2.1.3 Depot Level Maintenance

Upon completion of equipment installation, supply support and repair of LRUs will be the responsibility of the contractor under the ICMLS. At the end of the ICMLS, the FAA Logistics Center will administer a CDLS contract.

10.2.1.4 Engineering Support

The contractor will provide on-site engineering support for delivered software and documentation for the first full fiscal year after installation.

Reference: Draft Integrated Logistics Support Plan dated 3/8/97

10.2.2 William J. Hughes Technical Center (WJHTC)

Software for the HID/NAS LAN will be maintained under the management of Operational Support Service AOS. All software maintenance will be accomplished at the FAA William J. Hughes Technical Center (WJHTC) by AOS personnel or support contract personnel under FAA guidance. Although located at the WJHTC, the support group provides skills to analyze and correct system-wide problems and assist sector support staffs in diagnosing difficult site problems.

10.2.2.1 Restoration Response Level

AOS will maintain the ability at the WJHTC to replicate field sites to provide quick problem resolution.

10.2.2.2 Depot Level Maintenance

Refer to paragraph 10.2.1.3.

10.2.2.3 Engineering Support

AOS is responsible for second level software engineering support, software development, modification and enhancement.

Reference: Draft, HID/NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

10.2.3 Other Special Support Facilities

Not applicable. There are no other special support facilities identified.

10.3 Materiel Support

10.3.1 Project Materiel

The contractor will be tasked to identify support and test equipment, special tools, and special test equipment required for site maintenance. Support and test equipment will be those items required to isolate, when the built-in fault isolation is unable to successfully isolate the failure to a single LRU, and electronically replace a redundant or backup LRU. After screening support equipment requirements against the existing inventory, the Program Manager could elect to procure needed support equipment through the HID/NAS LAN program.

10.3.2 Provisions and Supply Support

Initial site spares will be provided (with F&E funds) for critical and single point of failure LRU items. Site spares will be delivered prior to FAA acceptance of maintenance responsibility. After completion of the period of ICMLS, AF site technicians will call the FAALC for replacement LRUs. The contractor will ship the requested LRU/spare directly to the site via overnight delivery service. Upon the receipt of the new LRU/spare, the site technician will return the old part directly to the contractor. A list of site spares will be provided at a later date.

10.3.3 Depot Spares

Depot spares will be the responsibility of the FAALC. The contractor will provide to the FAA ARTCC sites the requested LRU/LRUs on an exchange and repair (E&R) basis. The FAALC will provide management and administer the SMLS contract provisions for life-cycle of the HID/NAS LAN system.

10.3.4 Packaging, Transportation and Storage

It is envisioned that no components will be processed through the FAALC. All components will be delivered direct from the contractor to the sites and failed components returned to the contractor.

The Program Office will initiate contract modifications for the contractor to send repaired/replaced components to the site in a reusable container with a return mailing label. The site will return the failed component in the container to the contractor.

The HID/NAS LAN system requires no FAA support equipment at site locations and will use a contractor depot repair service.

Equipment being shipped from the contractor to each designated site location will be prepared for delivery in accordance with ASTM-D-3951-94, Standard Practices for Commercial Packaging, and marked in accordance with the Supplemental Requirements of that directive.

On site stocks (spare parts) shipped directly to sites will be packaged in accordance with ASTM-D-3951-94. FAALC spares will be individually preserved/packaged in accordance with MIL-STD-2073-1.

Depot spares are not required to be stored at the FAALC.

All items will be transported by the most economical means consistent with established Department of Transportation (DOT) guidelines.

Reference: Draft Integrated Logistics Support Plan, dated 3/8/97

10.4 Technical Documentation

10.4.1 Hardware Documentation

CSC will prepare and deliver documentation for the HID/NAS LAN hardware. Documentation (including commercial manuals) will be delivered to the FAA and will be provided with each HID/NAS LAN system. Documentation listed below will be updated and delivered with each initial system.

a. Computer Systems Operator's Manual
b. Software User's Manual
c. Computer System Diagnostic Manual
d. Software Programmer's Manual
e. Version Description Document
f. System and Equipment Manual

10.4.2 Software Documentation

The FAA is responsible for maintaining the developed software, source code, and hardware documentation.

Computer Science Corporation (CSC) is developing HID/NAS LAN applications software.

10.4.3 Procedural Documentation

The contractor will deliver technical data for the HID/NAS LAN project in accordance with the contract Statement of Work (SOW). Technical manuals will describe how to install, operate, and maintain the HID/NAS LAN system and should address all levels of users.

Reference: Draft, HID\NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

10.5-10.19 (Reserved)

10.20 Status Assessment

There are currently no know issues in regards to system supportability.

11.0 PROGRAM SCHEDULE INFORMATION

11.1 NAS Implementation Schedule

Table 11-1 lists the schedule for the implementation activities. Installation, testing, site acceptance testing and CAI is anticipated to be take approximately 14 working days at each center.

11.2 Deployment Schedule

Table 11-1 lists the current HID/NAS LAN installation start dates.

Table 11-1. HID/NAS LAN Implementation Schedule*

ARTCC	ID	REG	Site Survey	Fit-Up	Deliver	Install	Test	CAI	IOC	ORD
FAATC	NA	NA	03/10/97		05/06/97	05/06/97	05/20/97	05/23/97	N/A	N/A
FAAAC	NA	NA	03/19/97	04/21/97	05/06/97	05/19/97	05/24/97	06/04/97	N/A	N/A
DENVER	ZDV	ANM	05/20/97	07/14/97	08/08/97	08/08/97	08/21/98	08/28/97	10/28/97	11/25/97
FORT WORTH	ZFW	ASW	04/30/97	Center	08/29/97	09/03/97	09/15/97	09/22/97	11/04/97	11/25/97
LOS ANGELES	ZLA	AWP	06/03/97	09/22/97	10/10/97	10/10/97	10/20/97	10/29/97	12/01/97	01/02/98
ATLANTA	ZTL	ASO	08/05/97	11/03/97	12/01/97	12/02/97	12/09/97	12/18/97	01/19/98	02/19/98
MIAMI	ZMA	ASO	09/30/97	01/05/98	01/09/98	01/12/98	01/19/98	01/28/98	03/02/98	04/02/98
INDIANAPOLIS	ZID	AGL	11/04/97	03/02/98	03/06/98	03/09/98	03/16/98	03/25/98	04/27/98	05/28/98
MEMPHIS	ZME	ASO	12/09/97	04/06/98	04/10/98	04/13/98	04/20/98	04/29/98	06/01/98	07/02/98
KANSAS CITY	ZKC	ACE	02/03/98	06/01/98	06/05/98	06/08/98	06/15/98	06/24/98	07/27/98	08/27/98
NEW YORK	ZNY	AEA	03/03/98	07/06/98	07/10/98	07/13/98	07/20/98	07/29/98	08/31/98	10/01/98
ALBUQUERQUE	ZAB	ASW	05/05/98	09/07/98	09/11/98	09/14/98	09/21/98	09/30/98	11/02/98	12/03/98
OAKLAND	ZOA	AWP	06/02/98	10/05/98	10/09/98	10/12/98	10/19/98	10/28/98	11/30/98	12/31/98
BOSTON	ZBW	ANE	07/28/98	12/07/98	12/08/98	12/15/98	12/24/98	01/25/99	01/24/00	02/24/00
JACKSONVILLE	ZJX	ASO	09/01/98	01/06/99	01/12/99	01/13/99	01/20/99	01/29/99	03/01/99	04/01/99
SEATTLE	ZSE	ANM	10/27/98	03/01/99	03/05/99	03/08/99	03/15/99	03/24/99	04/26/99	05/27/99
SALT LAKE CITY	ZLS	ANM	12/01/98	04/05/99	04/09/99	04/12/99	04/19/99	04/28/99	05/31/99	07/01/99
CHICAGO	ZAU	AGL	02/02/99	06/07/99	06/11/99	06/14/99	06/21/99	06/30/99	08/03/99	09/02/99
CLEVELAND	ZOB	AGL	03/02/99	07/05/99	07/09/99	07/12/99	07/19/99	07/28/99	08/30/99	09/30/99
WASHINGTON	ZDC	AEA	05/04/99	09/06/99	09/10/99	09/13/99	09/20/99	09/29/99	11/01/99	12/02/99
HOUSTON	ZHU	ASW	06/01/99	10/04/99	10/08/99	10/11/99	10/18/99	19/27/99	11/29/99	12/30/99
MINNEAPOLIS	ZMP	AGL	07/27/99	12/01/99	12/07/99	12/08/99	12/15/99	12/24/99	01/24/00	02/24/00
Note: Heavy line is										
fiscal year break/										
delivery										
* as of 6/17/97										

11.3 Site Implementation Schedule

The schedule for completion of each site's major implementation milestones will be determined by the regional F&E engineering personnel on a site-by-site basis. A generic timeline for each of the seven phases of implementation, based on how long it should routinely take to accomplish a defined task is contained in the Generic Site Implementation Plan (GSIP), Appendix A. Individual sites may adjust this GSIP based on experience and unique features of the that site's implementation. The following is an estimated length of the time required to prepare and complete each phase of implementation:

Pre-INCO	15 Months
INCO	60 Days
System Integration	150 Days
Field Site Evaluation	150 Days
Equipment Removal	N/A

11.4 Schedule Dependencies

Successful integration of the HID/NAS LAN with the Host equipment suite is heavily dependent upon AOS upleveling of the host monitor code into the pending Host software version A4e2.0 scheduled.

Installation schedule of the DSR program may impact the installation of the HID/NAS LAN due to the limited F&E resources.

Approval by the In-Service Review to proceed is required for all full deployment and implementation of the HID/NAS LAN system. Field site evaluation and JAI will be dependent upon individual region and site requirements.

11.5-11.19 (Reserved)

11.20 Status Assessment

Installation of the HID/NAS LAN success remains predicated upon continued funding from AUA-200 and AND-720. Funding shortfalls for FY 98 and FY 99 have not been resolved and requests for ordering and installation of equipment depends on the funding availability.

12.0 ADMINISTRATION

12.1 Acquisition Program Summary

12.1.1 Market Survey

A Commerce Business Daily (CBD) and formal Market Survey was not required nor conducted. However, the IPT conducted an internal Market Survey to verify pricing and hardware availability.

12.1.2 Acquisition Strategy

The HID NAS LAN is a Commercial-Off-The-Shelf (COTS) acquisition which will be procured under the provisions of the National Institutes of Health (NIH) omnibus contract, Chief Information Officer Solutions and Partners (CIO-SP) contract. This vehicle provided for solicitations form a pool of pre-qualified contractors who submitted quick turnaround proposals or oral presentations. From the evaluation of these proposals, the best qualified contractor was selected.

12.2 Contracting Information

There are two contractual activities that pertain to the HID/NAS LAN program:

1. Computer Sciences Corporation was awarded the HID NAS LAN contract to furnish, integrate and test 22 systems nationally.

2. Computer Sciences Corporation, under the En Route Software Development Services (ERSDS I & II) contract, developed the application software, a component of the HID/NAS LAN system to provide Host Monitor code software. This software will provide the HID driver to the HCS, develop HID interfaces to CTAS, URET, AERA, DLAP, and ETMS, and integrate the HID/NAS LAN system, end-to-end with the HCS.

12.2.1 Prime Contract

The prime contractor for both contractual activities listed in 12 .2 is Computer Sciences Corporation (CSC),

100 Decadon Drive, Suite 200
Egg Harbor Township, NJ 08232

12.2.2 Service Contracts

The contract with CSC includes implementation/installation, testing, integration and maintenance support services.

12.2.3 Program Support Contracts

Listed below are the prime contractors that provide support for AND-720.

Information Systems and Networks Corporation (ISN)
Portals, Suite C65
1280 Maryland Avenue, SW
Washington, D.C. 20024

AMTI
1101 15th St, NW
Suite 900
Washington, D.C. 20005

Lockheed Martin, NAS Implementation Support Contract (NISC)
400 Virginia Avenue, SW
Suite 400
Washington D.C. 20024

En Route Centers Automation Requirements Support Contract (ECARS)
400 Virginia Avenue, SW
Suite 500
Washington, D.C. 20024

12.2.4 Regional Contracting

As determined by the RAPMs and TOR's, either in-house F&E resources or the TSSC personnel may be funded by AND-720 to perform/participate in site survey, preparation and/or installation.

Reference; Program Plan for Aeronautical Data Link Systems, dated October 5, 1995 and the NAS Integrated Logistics Support Plan, dated February 1996.

12.2.5 GFP/GFI/GFE Obligations

A HID/NAS LAN hardware suite will be provided as GFE to CSC for testing with ERSDS II. The Host Monitor Code and flash memory has been provided GFI to CSC.

Reference: HID/NAS LAN Statement of Work, dtd 2/20/97

12.3 Program Management (PM)

12.3.1 PM Charter

The lead for the Aircraft, Avionics and Navigation Systems IPT has designated AND-720 as the Product Lead for the En Route portion of the ADLS program including the HID/NAS LAN System. ADL Product Team provides for En Route ADL implementation and program management. The IPT plan sets forth the conceptual framework of this matrix. A list of HID/NAS LAN FAA Product Team members, routing symbols, roles and telephone numbers is provided in Table 11-2 and Table 11-3 provides the HID/NAS LAN Contractor Product Team Members.

12.3.2 Program Management Team (PMT)

Table 12-1 below lists the FAA members:

Table 12-1. HID/NAS LAN FAA Product Management Team

NAME	Title/Function	CODE	PHONE #
Dr. Larry Stotts	Aircraft, Avionics & Navigation IPT Leader	AND-700	202-267-3320
Lockett Yee	Data Link Product Leader	AND-720	202-358-5106
Timothy Hancock	Project Manager/COTR	AND-720	202-358-5430
Melda Dyer	Contracting Officer	ASU-330	202-358-4970
Barbara Kates	Contacting Officer	ASU-330	202-358-5042
Tom Kepner	FAA Engineering	AND-720	202-358-5051
Paul Przedpelski	Quality Assurance	ASU-210	202-267-8904
Gary Mankin	Property Administrator	ASU-210	202-267-3587
Gary Morfitt	Associate Product Lead for Test	ACT-350	609-485-6418
Vic Patel	FAA T&E	ACT-350	609-485-5046
Gary Burke	En Route IPT	AUA-240	202-366-4614
Vinod Bhatnager	Associate Product Lead, NAS Implementation	ANS-700	202-358-5067
Cecil Croy	Associate Product Lead, Training	AMA-424	405-954-4924
Mark Starnes	Associate Product Lead, Logistics	ARN-200	202-267-3633
Regina West	Logistics Management	AML-210/FAALC	405-954-5627
Doug Guido	Lead/Field Support	AOS-300	609-485-6460
Carmen Bigio	Lead/Field Support	AOS-500	609-485-7945
Paul Wolownik	IOT&E	ATQ-3	609-485-7033

Table 12-2 below lists the contractor support members:

Table 12-2 HID/NAS LAN. Contractor Product Management Team

NAME	Title/Function	CODE	PHONE
Roger McNamara	System Engineer	AND-720/COMTAC	202-479-0085, x235
Diane Growitz	Senior Planner - Schedule	E&I Systems Inc.	202-479-0085, x286
Ron Grell	Acquisition Engineer	AND-720/ COMTAC	202-479-0085, x278

Wesley Rowland	System Engineer - Implementation	AND-720/COMTAC	202-479-0085, x263
Clarissa Riffe	NAS Implementation	ANS-700/NISC	202-646-2181
Lew Merkel	Testing	Unisource	609-485-5972
Jerry Weber	Logistics Support	ARN-200/ECARS	202-646-2321

12.3.3 Program Status Reporting

Major Acquisition Review (MAR) - Chaired by the Associate Administrator for Research and acquisitions to review all programs under his preview. The Product Leads in this case AND-720, briefs the performance of all their Product Lines (projects) in an open forum, addressing progress, issues and concerns. This senior (SES) level meeting is scheduled approximately semi annually. Previously conducted Program Status Reviews have been discontinued.

In-Service Review (ISR Meetings) - The AND-720 PT will coordinate tracking and resolution of the HNL ISR checklist action items.

Airway Facilities Requirements Management Team (AFRMT) - Held at the discretion of the APML, and product manager, normally once each quarter, but at least semi-annually through the first year after contract award and as required through system disposal.

In-Service Approval - conducted following successful completion of field familiarization testing.

12.3.4 Exception Management

Management by exception is a management concept in which an issue is only elevated after every effort has been made to resolve the concern with the PMs authority and resources. Technical, implementation, and transition issues that cannot be resolved by the HID/NAS LAN PM will be identified and presented during IPT reviews.

12.4 Quality Assurance

12.4.1 Program Acceptance Criteria

The Government's Quality and Reliability Officer (QRO) assigned to this contract has the authority to verify that the contractor's quality system complies with contract requirements, including the contractor's Quality Support Plan (QSP), to witness tests, and to inspect and accept or reject supplies under this contract.

Reference: HID/NAS LAN Statement of Work, dated 2/20/97

12.4.2 Risk Management

An an IPT, the Aeronautical Data Link IPT will recognize team members as being fully empowered to represent their functional area of expertise. Should the IPT find that team members are not being fully empowered, the issues will be raised immediately to the Integrated Management (IMT) for action.

Reference: Drafted Aeronautical Data Link IPT Plan

12.5 Configuration Management (CM)

The Contractor will establish, implement, and maintain CM programs. AOS is responsible for the hardware and software configuration of the operational system. Any changes to the operation HID/NAS LAN, either hardware or software, must be approved by AOS.

12.5.1 CM Responsibilities

12.5.1.1 Hardware CM

The contractor will specify a single authority who will serve as a focal point for all communications on CM-related issues. The Configuration Audit Plan will include functional and physical descriptions, checklists/part lists, and a traceability matrix.

The contractor will submit Engineering Changes Requests (ECRs) when changes to baselined configuration items are proposed by the contractor and any subcontractor/vendor. ECRs will be submitted to the FAA contracting officer for approval/disapproval after establishment of the product baseline but will not submit hardware changes below the LRU level which do not affect the form, fit, or function of the LRU.

12.5.1.2 Software CM

CSC will establish, implement, and maintain a CM program on all computer software configuration items. CSC will submit software change requests when changes to baselined configuration items are proposed by the contractor. ECRs will be submitted to the FAA contracting officer for approval/disapproval after establishment of the product baseline.

12.5.2 Configuration Control Boards (CCB)

CM procedures for the HID/NAS LAN will be in accordance with FAA Order 1800.8F. CM responsibility will reside with AOS. Subsequently, the approval authority for form, fit and function modifications will reside with AOS CCB. AOS will be responsible for monitoring and updating the configuration.

Reference: Draft, HID\NAS LAN Integrated Logistics Support Plan (ILSP), dtd 3/8/97

12.5.3 CM Milestones

Table 12-3 lists the current configuration management milestones:

Table 12-3. Configuration Milestones

Milestone	Completion Date	Actual Finish
Functional Configuration Audit (FCA)	12/20/96	12/20/96
Physical Configuration Audit (PCA)	1/22/97	1/22/97
Interface NCP Approved by CCB	2/13/97	2/13/97
Power NCP Approved by CCB	4/10/97	5/2/97
Configuration Management Plan	5/6/97	5/4/97
Configuration Audit Plan	5/6/97	4/10/97
Space NCP Approved by CCB	6/30/97	
NSM/User NCP Approved	7/31/197	

12.6-12.19 (Reserved)

12.20 Status Assessment

There are no known administration risks associated with the implementation of the HID/NAS LAN.

13.0 IMPLEMENTATION (REQUIREMENTS)

13.1 Implementation Support Organization

13.1.1 Associate Product Lead for NAS Implementation (APLNI)

NAS Transition and Integration Division, ANS -700, has assigned Vinod Bhatnagar as the APLNI and Clarissa Riffe, NISC, as the Implementation Specialist (ISS) for the HID/NAS LAN project. The APLNI is a member of the IPT. The APLNI and ISS are responsible for developing and coordinating the PIP and the Generic Site Implementation Plan (GSIP); coordinating and tracking implementation and transition issues; reviewing contractor developed implementation plans, procedures and reports, and tasking the status of program exit criteria related to implementation.

13.1.2 Implementation Management Team (IMT)

The IMT is comprised of the PT which will participate, along with the Regional Associate Program Managers (RAPMs), in the coordination of the HNL PIP and GSIP and support identification and resolution of implementation issues.

13.1.3 Regional Associate Program Manager (RAPM)

The RAPM is part of the PT team and is the point of contact for implementation issues within their respective regions. The following the RAPMS support the HNL project:

Table 13-1. HID/NAS LAN RAPMs

ANM	Bob Paro	ANM-450E.1	206-227-2372
ASW	Louise Molinar	ASW421.2	817-222-4226
AWP	Daryl Kitchen	AWP-422.41	710-725-3496
ASO	Rich Williams	ASO-458W	404-305-6297
AGL	Bernie Wooldridge	AGL-459.1	847-294-7677
ACE	Gary Thomas	ACE-422B	913-791-8618
ANE	Bruce Ng	ANE-422	617-238-7434
AEA	Jim McGovern	AEA-453.1B	718-553-3467

13.1.4 Technical On-site Representatives (TOR)

The TOR is designated for each site by the appropriate AF division manager and is appointed by the Contracting Officer. This positions serves as the interface among the contractor, AF sector personnel, the RAPM and the COTR. The RAPM will request the TOR to be designated at the appropriate time within the planning phase.

Table 13.2 HID/NAS LAN Technical On-Site Representative (TOR)

ANM	ZDV	Dave Bayliff/ Ed Olson	303-651-4308 303-651-4305
ANM	ZSE	TBS	
ASW	ZFW	Dao Pham/ George Howard	817-858-7430 817-358-2677
ASW	ZAB	TBS	
ANM	ZLC	TBS	
ASW	ZHU	TBS	
AWP	ZLA	Kathleen Hutchison	805-265-8384
AWP	ZOA	TBS	
ASO	ZMA	David Lebby/ James S. Harris	404-305-6459 305-716-1574
ASO	ZTL	David Lebby/ Richard Farrell	404-305-6459 770-210-7971
ASO	ZME	David Lebby/ Pam Goudy	404-305-6459 901-368-8295
ASO	ZJX	TBS	
AGL	ZAU	TBS	
AGL	ZID	TBS	
AGL	ZMP	TBS	
AGL	ZOB	TBS	
ACE	ZKC	TBS	
AEA	ZNY	TBS	
AEA	ZDC	TBS	
ANE	ZBW	TBS	

13.1.5 Contract Support

The list of contractor support is provided in paragraph 12.2.3.

13.2 Site Implementation Process

13.2.1 Implementation Planning Phase

13.2.1.1 Implementation Activities

The following site activities require implementation planning and coordination. FAA site preparation, HNL Program Office funding support for FAA site preparation, and HNL system installation and testing by CSC.

Attachment 13-1 is a generic copy of the Site Survey Checklist which will be used during site survey to establish the site preparation requirements for site implementation and installation by the contractor.

13.2.1.2 Requirements

ANS-700, the program office and CSC is coordinating with the HNL RAPMs, F&E Engineering, and site personnel to establish the dates for the HNL installation and site preparation at the centers.

13.2.2 Pre-Installation and Checkout (Pre-INCO) Phase

13.2.2.1 Implementation Activities

a. FAA Organizations. The respective site TOR will be responsible for ensuring that the site preparations are completed on schedule. The GSIP is provided as Appendix A. The GSIP is not a required deliverable but may provide a method for site personnel in planning and organizing their site preparation activities.

b. Equipment Delivery. All HNL equipment will be stored on-site until installation. The respective TOR will coordinate with CSC during site survey as to where the equipment is to be delivered.

13.2.2.2 Requirements

Regional and on site FAA personnel will perform the following site preparation activities:

a. Establish a configuration baseline for each site which satisfies floor space, location, and power requirements.
b. Support CSC in preparing site plans and procedures necessary to receive and support the installation of the HNL.

c. Support CSC in site preparation requirements establishing FAA and contractor responsibilities for site preparation during the site survey.
d. Support CSC during installation, e.g., coordinating with CSC the installation and integration activities and escorting CSC to and from the installation site.

13.2.3 Installation and Checkout (INCO) Phase

13.2.3.1 Implementation Activities

A series of activities will be performed during CSC's installation, durations are approximate and may vary from site to site:

DAY 1:
- Arrive on site
- Meet with site TOR

DAY 2:
- Inspect/inventory equipment and material

DAY 3:
- Assemble cabinets
- Connect seismic tie-downs
- Cable to facility ground system

DAY 4:
- Install equipment in cabinets
- Connect signal cables to HNL
- Power up HNL from service power

DAY 5:
- Conduct power testing
- Connect/switch HNL to critical power
- Box test HNL components

DAY 6:
- Verify HOST/Monitor Ver A4e2.0 installed and operational

DAY 7:
- Install GFE HNL application software

DAY 8:
- Connect and verify HNL - HOST compatibility

DAY 9:
- 24-hour burn in

DAYS 10- 17:
- Perform SAT dry runs
- Perform SAT Formal Runs
- Post Test Briefing

DAY 18:
- CAI

13.2.3.2 Requirements

The on-site TOR will provide verification that the HNL equipment installation is satisfactory. The site manager will verify and approve the HNL equipment installation once checkout has been successfully completed.

13.2.4 System Integration Phase

13.2.4.1 Implementation Activities

CSC and the FAA shall complete the installation checklist after the system is installed to determine that all components of the system are operating properly.

13.2.4.2 Requirements

System Acceptance Testing (SAT) will be performed at each site after installation. This will demonstrate that the HNL meets its functional and system level performance requirements, has been integrated as specified and can interface and operate with the specified external systems/subsystems.

13.2.5 Field Site Evaluation/Familiarization Phase

13.2.5.1 Implementation Activities

Each system will undergo field site evaluation/familiarization prior to commissioning. The site evaluation will not be as extensive as the first site OT&E site evaluation.

13.2.5.2 Requirements

Facility site personnel will observe contractor system acceptance testing and report results to the program office through the RAPM. Upon completion of SAT, site personnel will observe and provide feedback on the HNL system performance.

13.2.6 Dual Operations Phase

13.2.6.1 Implementation Activities

There will not be dual operation of the HNL. The equipment will be installed and cutover at the times established by the FAA site personnel.

13.2.6.2 Requirements

Refer to paragraph 13.2.6.1.

13.2.7 Equipment Removal Phase

13.2.7.1 Implementation Activities

There will not be any equipment replaced nor removed during the installation of the HNL equipment.

13.2.7.2 Requirements

Refer to paragraph 13.2.7.

13.3-13.19 (Reserved)

13.20 Status Assessment

There are no known risks identified at this time regarding the implementation of the HID/NAS LAN.

Attachment 13-1 Site Survey Checklist

FAA HNL Site Survey
_____ ARTCC
Conducted on: __/__/9__

Survey conducted by: N. Schiffhauer, CSC, Phone - (609) 383-8091

Attended by:
Ms. Clarissa Riffe, NISC/ANS-700, Phone - (202) 646-2181
Mr. Wesley Rowland, ISN/AND-720, Phone - (202) 479-0085 ext. 263

_____
_____
_____
_____

Site Location/Shipping Address:
Addressee FAA, 'site name' ARTCC
_____
_____
Address: _____
City/State/Zip:_____

Driver to contact _____
Contacts' Phone # ( )_____
Inside Delivery Location _____

Site Contacts:
- TOR _____ Phone: - _____ E.mail: - _____
- ATOR _____ Phone: - _____ E.mail: - _____
- Site Coordinator _____ Phone: - _____ E.mail: - _____
- Test Director _____ Phone: - _____ E.mail: - _____
- RAPM _____ Phone: - _____ E.mail: - _____

Review the following information with the site personnel:
- HNL physical characteristics
- Connectivity with the legacy equipment
  * Cannot exceed 275' from 3083 connection through tape control unit to HNL
- Grounding Requirements
  * Multi-Point Grounding Plate required at HNL Location (6 ft cable allowed from HNL connection to the ground plate)
  * Ground plate is required to have 1/4" studs or 1/4"holes for connecting Two ground cables.

- Power requirements
  - * Service Power (with NEMA L5-15R receptacles) before connecting to critical power
  - * Critical Power
- Deployment Schedule
- HCS Test Account
  - * Class 'H' test account for CSC during the Installation and Site Acceptance Test periods (for MDM executions with HNL)

Data ,Information and Coordination required from the XXX Center

- Required By: - _____

- Send to:
  Ms Kathy Parsons
  100 Decadon Drive, Suite 200
  Egg Harbor Township, NJ 08234-3831

  Phone: (609) 383-8152
  Fax: (609) 646-8228
  Email: kparsons@cscmail.csc.com

- DATA:
  * ACES listing of LDN$ and IMER$, Hard copy and Soft copy
  * Initialization (INIT) Deck, Hard copy and Soft copy
  * Site Functional Scenario source file and SIM build listing sorted by time

- INFORMATION:

  * Test completion by site (date) for NAS Version 2.X Release (both NAS and MDM)
  * Site approval for using the (TR) Patch for HCS/HNL connectivity testing
  * Site approval for using the MDM Exec's during Acceptance testing

- COORDINATION:

  * Test User-Id Class H account (MDM) and 10 cylinders
  * Visitor security badges and access authorization (Cipher lock #'s or access cards)

Material Provided:

Site Drawings

Drawing Title - _____
Drawing Type - _____
Drawing Number - _____
Drawing Title - _____
Drawing Type - _____
Drawing Number - _____
Drawing Title - _____
Drawing Type - _____
Drawing Number - _____
Drawing Title - _____
Drawing Type - _____
Drawing Number - _____

Contractor Licensing, Bonding, or other restrictions?

If so, note the requirements and the agency name and address for resolution:

_____
_____
_____
_____
_____

Is the site facility leased or owned? - _____

If leased, are any permissions or releases required to perform the Fit-up work? - _____

If so, note the requirements and the agency name and address for resolution:

_____
_____
_____

Name of the site person accountable for obtaining the permissions or releases. -

_____

Power Panel:

- Location -_____
- Circuit Breakers, - HNL requires 4 circuits, each at 110 Volts, 15 Amp rating.
- Is it switchable between 'Service' and 'Critical' power sources.

Does it already exist? _____

If not, can it be installed or modified according to the date required in the proposed schedule? - _____

If not, what is the best date that it will be installed or modified? - _____

HNL Equipment:

Located in the Host Room? - _____

If not:

What is the room designation? - _____

Is the floor raised? - _____

Raised Floor Description:

Tiles:

Dimensions (HxWxD) - _____

Construction - _____

Height from concrete sub- floor - _____

Spare or pre cut tiles available? - _____

If yes, where - _____

Are wall and floor penetrations available for our use? - _____

If not, can they be completed before the Fit-up date in the proposed schedule? - _____

If not, when? - _____

Seismic Tiedown:

Are like equipment's tied down for seismic events? - _____

What is the Seismic Zone designation where the site is located? - _____

Are eye bolts chemically bonded into the concrete acceptable? - _____

Otherwise, angle iron will be fixed to the floor with bolts chemically bonded into the concrete.

Multipoint Ground System:

Is a multi-point grounding plate within 6 Ft. of the HNL cabinet? - _____

If not, can one be installed before the Fit-up date in the proposed schedule? - _____

If not, when? - _____

Otherwise, where is the nearest multi-point grounding plate? - _____

What is the distance? - _____

Cabling Path to HCS Tape Units:

Are existing signal cables beneath the HCS floor in cable trays? - _____

If so, is an existing set of cable trays available to use between the HNL and the HCS tape units? - _____

Are wall and floor penetrations available for our use? - _____

If not, can they be completed according to the date required in the proposed schedule? - _____

If not, when? - _____

HCS Tape Control Unit Channel Adaptation:

For channels 4xx and Axx, which is "Primary" and which is "Secondary"?

4xx - _____

Axx - _____

Tape Control Unit Connector Identifiers

HCS 1 Tape Control Unit

Channel A Connector - _____

Channel 4 Connector - _____

HCS 2 Tape Control Unit

Channel A Connector - _____

Channel 4 Connector - _____

Display Channel:

Is the display channel DCC or DCCR? - _____

NADIN Connection Point:

Room Designation: _____

Is an existing set of cable trays available to use between the HNL and the NADIN? - _____

Are wall and floor penetrations available for our use? - _____

If not, can they be completed according to the date required in the proposed schedule? - _____

If not, when? - _____

Equipment delivery and storage:

What is the preferred times for delivery at the site? - _____

In which room will the deliveries be placed/stored? - _____

Who is the person accountable for receiving, inspection and storing the equipment? - _____

Does the site require inside delivery? - _____

Data Collection:

Indicate on the provided drawings (to scale of drawing):

Location of Power Panel

Location of HNL

Location of NADIN connection point

Routing of power cables

Routing of HNL - HOST cables

Routing of HNL - NADIN cables

Location and length of any troughs to be spanned under the raised floors

Location of horizontal and vertical cable trays to be installed

Location of floor/wall penetrations

Location and nature of any hazardous material in routing paths

Location of ground grid

Measurements to be recorded:

Length of power cables - _____
Length of HNL - HOST cables:
Tape Control Unit Address Axx - _____
Tape Control Unit Address 4xx - _____
Length of HNL - NADIN cables - _____
Length of HNL - E Complex cables - _____

Width of any (each) troughs to be spanned under the raised floors
1. _____
2. _____
3. _____
4. _____

Length of Ground Cables
1. HNL to the multipoint ground plate_____

Lengths of horizontal and vertical cable trays to be installed
Vertical
1. _____
2. _____
3. _____
4. _____
Horizontal
1. _____
2. _____
3. _____
4. _____
Ceiling type and height above floor where overhead cable trays are required
Type - _____
Height - _____
Type and amount of protective covering needed where overhead cable trays are to be installed
Type - _____
Amount - _____

Appendix A

Host Interface Device NAS LAN (HID/NAS LAN)

GENERIC

SITE IMPLEMENTATION PLAN

(GSIP)

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	PLANNING PHASE					
1	Identify the following for the region:	1 day	AND-720	Cont. award	RAPM disseminate; ongoing.	11.1
	Installation sites					
	Site survey dates					
	Site fit-up					
	Equipment Delivery date(s)					
	Equipment Installation date(s)					
2	Identify Regional and Site responsibilities for HNL Implementation	5 days	AND-720	90 days > cont. award	Coordinate with Regional and Site AF and AT personnel.	13.2
3	Identify HNL Implementation Team, including AF and AT Test Directors	5 days	AND-720	90 days < Site Survey	Coordinate with Region and Site AF and AT management	12.3.2
4	Publish Site Survey Schedule	30 days	AND-720	60 days < Site Survey		11.1
5	Publish first draft of Site Implementation Plan (SIP)	45 days	NASOC	30 days < Site Survey		13.2
6	Develop a plan to track action items and issues	10 days	NASOC/ AND-720	< Site Survey		13.1.1
7	Identify site survey personnel:	5 days	RAPM	< Site Survey		13.1.3/ 13.1.4
	Site AT participant(s)					
	Site AF participant(s)					
	Site contractor support participant(s)					
	Technical Onsite Representatives (TOR) & phone number					
	Safety / HAZMAT participant					
	Regional 4XX participants					
	Regional 5XX participants					
	Regional Logistics Coordinator					
	FAA HQ participants					
	Other site participants					

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
8	Identify site AF support personnel budget requirements for implementation	30 days	RAPM / NASOC	< Site Survey		13.1.3
9	Identify site AT support personnel budget requirements for implementation	30 days	AXX-510 / AMNI	< Site Survey		13.1.3
10	Identify site access and badging requirements for delivery and testing personnel	5 days	NASOC	< Site Survey	Ongoing / as required	13.1.3
11	Develop labor estimates for HNL site preparation and travel costs	30 days	RAPM	> Site Survey	Requires Program Office designation of Region/Site responsibilities.	13.1.3
12	Initiate Implementation & Information (I&I) Brief with PASS and NATCA	30 days	RAPM/AXX-510/ SMO/ATM	Site Survey	Ongoing coordination	8.1.1.6
13	Identify unique space requirements for installation	5 days	NASOC	Site survey		6.8
	Equipment storage					
	Staging dock area requirements					
	Spares storage					
	Test equipment storage					
14	Identify impacts of other projects on HNL implementation	5 days	NASOC	Site Survey	List schedules and resources (examples of projects: WARP and CTAS)	5.1.2
15	Determine if sufficient floor space is available for installation. If not, generate local NCP for an alternate location.	5 days	NASOC	Site Survey		6.8
16	Identify additional requirements or space impacts based on HNL equipment installations, e.g.:	5 days	RAPM	Site Survey	Joint effort among RAPM, AXX-450, NASOC, SMO, and RPMES	6.8
	Additional ceiling, wall, & floor penetrations					
	Additional power and circuit breaker requirements					
	Building modifications/HVAC					
17	Identify Telco requirements and modifications:	5 days	SMO / NASOC	Site Survey	Coordinate with AXX-428, Air Traffic, and RPMES	6.1
	Admin Telco lines					

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	Added Telco line and hardware requirements					
	Wire runs and closets to be used					
	Lead times for service requests (TSR's)					
	Wall, ceiling and floor penetrations					
	Unique drilling requirements					
	Telco funding requirements					
18	Coordinate Maintenance Training Course Requirements with AFZ-100	10 days	RAPM/ AND-720	Site Survey	Number of people per implementation phase	8.3
19	Develop cost estimates for site prep	30 days	RAPM	15 mos < equip. del.	Prior to coordinating funding PA	13.1.3/ 13.1.2
20	Coordinate funding PA for HNL advanced planning and engineering with AND-720	45 days	RAPM/AND-720	12 mos < equip. del.	Relocation of non-HNL equipment and support equipment. (F&E support). Coordinate with RPMES	13.1.3
21	Identify and update local AF changes to:	90 days	SMO / NASOC	< IOC	AOS to provide Maintenance Handbook and complete nat'l action	10.1
	Procedures and standards					
	Admin. and maintenance procedures					
	Operational procedures					
	Interfacility procedures					
	System backup and cutover procedures					
	Certification Procedures					
22	Develop Transition Plan	90 days	NASOC	IOC	Coordinate with AF and AT; 90 days to develop initial draft and probably will need to be updated prior to IOC	13.2

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	PRE-INCO PHASE					
23	Provide Contractor point of contact list	5 days	NASOC	< Site Survey	Coordinate with AT	13.1.3
	AF Coordinator					
	AT Site Coordinators					
	SMO & Site Coordinators for testing					
	Site Security P.O.C.					
	Site Technical On-site Representative					
	Alternate TOR (ATOR)					
	RPMES					
24	Review equipment layouts for:	5 days	NASOC	< Site Survey	Coordinate with AT, AFS, RPMES	6.8/ 13.2.1
	Backroom equipment					
	Control Room equipment					
	Support terminal / printer requirements					
	Impact of delivery on operation of adjacent					
	New furniture requirements					
	Minimum access requirements - front, back, sides, top					
	Rack requirements and locations					
	Rack admin power requirements					
25	Conduct Initial FAA site survey to update site drawings and complete site survey worksheets	5 days	AND-720	15 mos < equip. del.		13.2.1
26	Review updated site drawings and documents with the HNL contractor:	5 days	NASOC	Site Survey	Coordinate with RPMES	13.2.1
	Floor plan layouts					
	Facility blueprints					
	Grounding / bonding locations					
	Shielding requirements					
27	Confirm shipping address and phone number with Program Office (AND-720)	5 days	RAPM/AND-720	Site Survey		13.2.1

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
28	Identify support space for:	5 days	NASOC	Site Survey		6.8/ 13.2.1
	Test personnel					
	Delivery Contractor personnel					
	Staging and assembly area					
29	Determine support equipment and access requirements:	5 days	NASOC	Site Survey	Coordinate with RPMES	13.2
	Availability of ramps					
	Elevator sizes and capacities					
	Door openings					
	Stair well sizes					
	Staging area, ladders					
	Dollies / fork lifts					
	Trash removal / recycling					
30	Review HNL power requirements:	5 days	NASOC	Site Survey	Coordinate with SMO	6.4
	Essential / Critical					
	Power panel access					
	Circuit breaker access					
	Testing procedures					
	Cut-over procedures					
31	Identify required cabling mods:	5 days	NASOC	Site Survey		6.3
	Convenience power outlets for contractor work					
	Wall, ceiling & floor penetrations					
	Circuit breaker panels affected					
	Unique drilling requirements					
	Grounding, bonding, and shielding requirements					
32	Determine required lighting modifications:	5 days	NASOC	Site Survey	Coordinate with RPMES	6.4
33	Identify HNL Contractor P.O.C. for delivery activities	5 days	AND-720/ RAPM/ NASOC	Site Survey		13.2
34	Review HAZMAT requirements	5 days	NASOC	Site Survey	Coordinate with AXX-460, AFS, SMO, TOR, RPMES, and Contractor	6.6
	Asbestos					

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	Dust					
	Noise					
	Storage					
	Usage					
	Removal					
	Disposal					
	Lock-out/Tag-out					
	Identify FAA HAZMAT / Environmental coordinator				AXX-460 takes lead	
	Obtain asbestos permits if required				Contractor responsibility	
35	Certify with AND-720 advanced funding PA is in place	5 days	RAPM/AND-720	12 mos < equip. del.		7.1
36	Update F&E cost estimates and schedules for HNL site prep	10 days	RAPM	10 mos < equip. del.		13.1.3
37	Update estimates for travel costs associated with HNL prep	10 days	RAPM	10 mos < equip. del.		13.1.3
38	Develop CAI Plan	30 days	AND-720	< Delivery		13.2
39	Initiate Facilities Reference Data File (FRDF) for HNL	30 days	NASOC/ SMO	< Delivery		13.2
40	Finalize training course attendees and schedule for:	30 days	NASOC / AMNI	6 mos < equip. del.	Coordinate with SMO, AFZ-100, AMA-480 and AOS-320	8.3
	HNL System Administrator Course					
	AF Hardware Maintenance Course					
	Operation and Configuration Course					
41	Delivery, storage & equipment access:	1 day	NASOC	2 wks < equip. del.	Coordinate at Site Readiness Review Telcon	13.2
	Arrange access to point of delivery					
	Arrange for equipment storage					
	Arrange for equipment off load					
42	Review Contractor's Site Preparation Plan	30 days	NASOC	60 days> Site Survey	RAPM: 1 copy; ARTCC: 3 copies	3.1

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
43	Update delivery schedule for project hardware	30 days	RAPM	30 days < equip. del.	Coordinate with AXX-510, 450, and NASOC	11.1
44	Review Site Readiness Review Telcon	1 day	NASOC	2 wks < equip. del.		3.1/ 13.2
45	Develop Site Installation Team Kickoff Agenda:	45 days	TOR/RAPM	30 days < equip. del.	Coordinate with AF	13.2
	Security passes/badges					
	Parking					
	Number and type of vehicles					
	Transfer, loading, and unloading requirements					
	Contractor clearance list with SSNs etc.					
	Work day					
	In house contact list					
	Training schedule					
	Issue resolution & tracking					
	Verify contractor insurance coverage & bonding					
46	Identify any LOAs and MOAs required or needing modification	45 days	RAPM/AXX-510	30 days < equip. del.		13.2
47	Review and approve Contractor test plans and procedures	45 days	NASOC / ACT-350	< delivery	RAPM: 1 copy; ARTCC: 3 copies	3.1
48	Review FAA Test and Evaluation Master Plan (Integration Test Plan)	45 days	NASOC	< CAI	RAPM: 1 copy; ARTCC: 3 copies	9.4
	Review FAA IOT&E Plan					
49	Identify testing personnel	5 days	NASOC	< CAI	Coordinate with SMO and AOS-320	9.4
50	Coordinate CAI Plan with SMO & site personnel	30 days	NASOC	< CAI		9.1.2.4
51	Develop Field Familiarization and Shakedown Test Plan	45 days	NASOC	< CAI	Plan covers activity from CAI to ORD	9.4
52	Participate in previous sites' Installation and Checkout and Field Shakedown	30 days	RAPM/AND-720	< CAI	Coordinate with SMO and AOS-320	9.4

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	INCO PHASE					
53	Establish the JAI Board (JAB)	5 days	SMO/TOR	< ORD	Chaired by AF SMO representative	8.2.1.2/ 13.2
54	Update cost estimate for AF and AOS-370 personnel providing project specific support	5 days	RAPM	Continuous		13.1.3
55	Oversee hardware delivery in end-state	30 days	AXX-450	During del.	Coordinate with TOR	13.2
56	Update AF system certification procedures	30 days	AOS-320	CAI		3.2.6
57	Conduct the Contractor Acceptance Inspection (CAI)	5 days	AND-720/ASU	CAI	Coordinate with NASOC, SMO	9.1.2.4/ 13.2
58	Update AF personnel certifications for new equipment	10 days	SMO	< IOC		3.2.5/ 3.2.6
59	Update facility maintenance operating procedures for project hardware	10 days	SMO	< IOC	Coordinate with NASOC	3.2
60	Finalize FRDF	30 days	SMO/AXX-450	Commissio ning		3.2

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	SYSTEM INTEGRATION PHASE					
61	Update cost estimate for AF and AOS-370 personnel providing project specific support	5 days	RAPM	Ongoing		13.1
62	Complete AF training	90 days	SMO/AMA-480	< IOC	Coordinate with AOS	8.3
63	Complete AOS training	45 days	AOS-370	< IOC		8.3
64	Review AF / AOS operational procedures	30 days	SMO/AOS	IOC		3.2.4
65	Close out any outstanding CAI discrepancies.	120 days	AND-720/ASU	IOC		13.2
66	Conduct system integration testing	120 days	AOS/AUA/ACT	IOC		9.1.1.3.1
67	Conduct AF familiarization training	120 days	SMO	IOC		9.1.1.3.3
68	Conduct partial JAI (as needed)	1 day	SMO	IOC		13.2
69	Declare Initial Operating Capability (IOC)	1 day	SMO / AOS	IOC	Coordinate with NASOC; Update FSEP	13.2
70	Monitor and report on system performance	90 days	SMO	IOC	Continuous until system decommissioned.	13.2
71	Prepare final testing report	10 days	NASOC/ SMO	90 days > IOC		9.5.3

HID/NAS LAN GENERIC SITE IMPLEMENTATION PLAN (GSIP)

Act. #	Activity	Duration	Respons. Org / Indiv	Due Date/ Schedule	Comments	PIP Para Ref
	FIELD EVALUATION PHASE					
72	Conduct operational testing	120 days	SMO / AT/AOS	>IOC		9.4
73	Review funding requirements to complete Field Evaluation Phase tasks	5 days	RAPM	Ongoing		9.4/ 13.2
74	Validate operational procedures	120 days	SMO / AOS	ORD		3.2.4
75	Monitor field shakedown	120 days	AOS/AND/ ACT/SMO	ORD	Coordinate with RPMES	9.1.1.3.3
76	Conduct Joint Acceptance Inspection (JAI) using the JAI checklist	5 days	SMO	ORD	Coordinate with NASOC	13.2
						13.2
77	Conduct Commissioning (ORD) procedures	1 day	SMO	ORD		

	DUAL OPS PHASE (Not Applicable)					
	Not Applicable					
	EQUIPMENT REMOVAL					
	Not Applicable					

Appendix B

ISSUE SUMMARY REPORT

(To Be Supplied)

Appendix C
ACRONYMS

Appendix C ACRONYMS

ACE	Central Region
AEA	Eastern Region
AF	Airway Facilities
AGL	Great Lakes Region
ANA	Program Director for Automation
ANE	New England Region
ANM	Northwest Mountain
ANS	NAS Transition and Implementation Service
APME	Associate Program Manager for Engineering
APML	Associate Program Manager for Logistics
APLNI	Associate Product Lead for NAS Implementation
APMR	Associate Program Manager for Requirements
APMSE	Associate Program Manager for Systems Engineering
APMT	Associate Program Manager for Test
ASO	Southern Region
ASW	Southwest Region
AT	Air Traffic
ATOR	Alternate Technical On-Site Representative
AWP	Western-Pacific Region
CAI	Contractor Acceptance Inspection
CDRL	Contract Data Item Requirements List
CIP	Capital Investment Plan
CM	Configuration Management Plan
CMLS	Contractor Maintenance Logistics Support
COTR	Contracting Office Technical Representative
COTS	Commercial-Off-The Shelf
DOD	Department of Defense
DRR	Deployment Readiness Review
F & E	Facilities and Equipment
GSIP	Generic Site Implementation Plan
HAZMAT	Hazardous Material
HVAC	Heating Ventlation and Air Conditioning
ICMLS	Interim Contractor Maintenance Logistics Support
ILSP	Integrated Logistics Support Plan
IMT	Implementation Management Team
INCO	Installation and Check-Out
ISR	In-Service Review (formerly DRR)
ISR	Issue Summary Report
JAI	Joint Acceptance Inspection
MDFM	Material Delivery Forecasting Module
NAS	National Airspace System
ORD	Operational Readiness Demonstration/Date/Deployment

OT&E	Operational Teat and Evaluation
Pre-INCO	Pre-Installation and Check-Out
PIP	Program Implementation Plan
PM	Program Manager
PMT	Program Management Team
RAPM	Regional Associate Program Manager
RFP	Request For Proposal
SIP	Site Implementation Plan
SMLS	Structured Maintenance Logistics Support
SOW	Statement of Work
SRMMS	Sustain Remote Maintenance Monitoring System
TBS	To Be Supplied
TEMP	Test and Evaluation Master Plan
TOR	Technical On-site Representative